

The BBC Radio I's
TV and Radio presenter

## in di

## THE JAKKI BRAMBLES COLUMN

Well OK then you Mums and Dads, it's that time of the year again when letters to Santa are coming your way
We get a lot of phone calls at this time of year from you guys because it really isn't that easy to decide which of the mega bundles to buy. So this month we have an easy guide to help you make that really important choice.
Amiga 600 Single Drive - The ONLY home computer for less than $£ 200$. Suitable tor the child fed up with paying out $£ 40$ for software for their Megadrive (software available from $£ 9.99$ ) or for the first time buyer. There are hundreds of software titles available including games, education, word processing, home accounts etc. Games available include strategy / role playing, tit where imagination is more important than aggression, learn to create animations not zap aliens aimlessly. Age Group 8-13 A 600 Hard Drive - A more serious version of the above. The hard drive saves repeatedly loading and swapping floppy dish: Suitable for serious games players and applications such as database management for a student or home office environment. Th Epic Pack is particularly useful for a foreign language orientated student. Age Group 12 +
Amiga 1200 Desktop Dynamite - The perfect solution for the student. You want him or her to have a computer to produce school work using quality Desktop Publishing software, he / she wants a dynamic games playing machine. This gives both you what you are looking for. The software alone is worth over $£ 300$. You can expand this computer through the addition of hat drives, extra memory, accelerator boards whatever the option most suitable for producing any number of serious application Want to be a graphic artist, video producer, film director, cartoon animator, musician, mathematician, designer.... the only lime tation to the machine is your imagination. Age Group 14+
Amiga CD32 - The choice for existing Amiga owners looking for the latest product in the range or for the dedicated consed owner. Knocks the Sega for six with its State - of - the - Art graphics. (Colours on screen Sega $=64 / \mathrm{CD} 32=256$ or 262,001 and processing speed ( Sega $=16$-bit $/$ CD 32 $=32$-bit) To you or me this means that people who write the games can now display more colours on screen and the action can be even faster. Also be aware this is also a Compact disc player with full four stereo sound so you can play your favourite CD's when the kids are at school. Connects to standard TVs and most his - is Age Group 10+
I hope this info assists. With Commodores help Tm certain that there will be thousands of happy smiling faces on Christie Day, but if you're still not sure give India a call they will be delighted to help.
P.S. Indi tell me that they are able to extend the "At Home

Service" on most new Commodore products to a full 3 years for as little as $£ 39.99$ through their agreement with ICL, the Giant European Warranty Company. Might be worth checking out for that extra peace of mind.

## (able crabs

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Christmas is a very expensive time of ye
so here's an offer that really helps you buy time for Christmas and spreads the cost next year. Choose any ind product (or m products) valued at over $£ 200$, pay $10 \%$ deposit and start paying again in $10 \%$ deposit and start paying again in 3 months time. Here's how it works, choc your products and telephone Indio on 0543 419999 and ask for Credit Sales. We will you a few questions, explain to you what will pay and when and then complete our credit check. Within 24 hours we will be to clear your order and subject to status to clear your order and subject
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| :--- | ask for a $10 \%$ deposit. If you pay by crate card we will be able to release the product straight away, If you send us a cheque, if take a few extra days. The only other der that you will have fo make is do you wish that you will have to make is do you wise spread the payments over months? The choice is yours!

## DON'T SEND ANY GONE

Until you are $100 \%$ certain that any advert has the product that you want in stock and deliver it to you immediately. Far too often Jakki Brambles receives lent from customers who are finding it difficat obtain a refund from an advertiser that has promised to supply but hasn't. To give you the confidence to purchase IN has joined the DMA a very important Independent Authority that demands the highest possible standards from its member

The exterior may be sleek but lurking inside the Amiga CD32 is a technological wonder. At ir's heart is the mightily powerful 68EC020 processor from Motorola. This contains the 32 - bit technology which has made the Amiga 1200 a runaway success throughout Europe. Alongside it is Commodore's unique custom AGA (Advanced Graphics Architecture) chipset - comprising three chips nicknamed Paula, Lisa and Alice.
Together they make Amiga CD32 and awesome powerhouse of high speed graphics and stunning sound capabilities. In fact, the machine can display 256,000 colours on screen (compared to Sega's Mega CD which can only display 64) and has a vocal colour palette of 16.8 million colours. Amp CD12 also cones with a ching 2 Meg of ReNe tarsus lines more tan Mope CD) and a date pent ane

* 14 MHZ 68 EC 020 processor
* 2 Megs 32 - bit chip RAM
* 2 Joystick ports/controller ports
* S- video jack
* Composite video jack
* RF output Jack
* Stereo audio jacks
* Keyboard connector/ auxiliary connector
* Full expansion bus
* Headphone jack
* Headphone volume control
* External trick power supply
* lenernal MPEG FMV expansion capability
*) Maliplic serine dix c capability

We've said it before and no appologies for repeating it. Adding an Ind Microbotics M1230XA card to your Amiga 1200 turns it into ${ }^{2}$ MACHINE I Performance Comparison


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#### Abstract

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Amiga Logo - Educational and programming language.

## $699.99 \quad$ INDI 300015

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The 1630 is a 68030 accelerator board running at 25 Mhz complete with a 68882 FPU and 2 Mb of 32 - Bit fast RAM suitable for the A2000. THe 2630 board brings the performance of the Amiga 2000 upto nearly that of the A3000, ideal when running professional applications. An additional 2 Mb of 32 - Bit fast RAM can be added to the 2630 board, giving a total of 4 Mb of fast RAM.

A 2300 GENLOCK
A cost effective home quality entry level internal genlock suitable for the Amiga 2000/3000. The 2300 genlock is an ideal solution for anyone wishing to put titles or graphics onto home video.
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## 



## Nine pages

 for enquiring mindsThe most authoritative monthly columns in the business, covering all areas of specialised Amiga activity

ARexx
Alex Gian presents a newcomers guide to tbis powerful and flexible programming and scripting tooh for all Amigas

## Video

Adam Pbillips looks at recruiting your crew in this, the second part of bis epic serialisation of the video-making story

## Music

As a prelude to the silly season, Paul Austin provides a concise buyers'guide to the best of the Amiga music soflware

## Comms

Pbil Soutb looks at wbat life's like on the Internet, and asks a few questions about FTP

Amos
How to use the Amos Sort function complete witb examples, and some more coding widgets, from Pbil Soutb

## Publishing

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- floppies
- monitors
- RAM
- printers
essential software
- consumer rights and lots more!
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IIIL printers


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Star LC100 Colour $£ 165.00$
Star LC20
£124.00
Star LC24/100 Mono
£179.00
Star LC24/30 Colour £249.00

- Built in 55 sheet feeder
- 24 Pin Colour

Starjet SJ48 Bubblejet £210.00
Star SJ144
£549.00

- Thermal max transfer colour printer
- 144 element head
- Glossy colour output
- 360 dpi resolution


## Citizen

Citizen Swift $\mathbf{2 4 0}$ Colour $£ 270.00$

## Hewlett Packard

HP Deskjet 510
HP Deskjet 500 Colour

## Lasers

Ricoh LP1200
£699.00
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and $£ 7$ for next working day courier delivery.

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- Ultra fast 11 ms access
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- Quantum SCSI Hard drive - 40 MHz 68030 Accelerator - FPU expansion slot

A530 42Mb
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A530 80Mb

## SPECIAL OFFER

A530 170MB £579
A530 240MB £659

## GVP Genlock

- Video processor provides real time software control of brightness, contrast, saturation, hue, sharpness, filtering, gain etc.
- Audio processor with two audio inputs, software switchable or mixable, with software control of Volume, Bass and Treble effects. G-Lock Genlock
£284.00


## A1200 Hard <br> prives

Plugs into internal IDE expansion

- Ribbon cable exits through PCMCIA slot
- Warning fitting voids warranty 170 Mb
£249
Phone for higher capacities.


## Amiga Packs

£184.99
Amiga A600 Lemmings

## Pack

Includes A600 with 1Mb RAM,
Lemmings
Amiga 600 Wild, Weird
and Wicked Pack
£194.99
Includes A600 with Pushover,
Microprose Grand Prix, Putty and Deluxe Paint III
A1200 Race \& Chase £289.99 Includes A1200 with 2Mb RAM. Trolls and Nigel Mansell A1200 Desktop Dynamite £349.99 Includes A1200 with 2Mb RAM, Digita Wordworth, Digita print manager, Deluxe Paint IV, Dennis, Oscar
Amiga CD32
£289.99
2Mb RAM. Dual Speed CD ROM
Multi session, plays music CD's, 256000 colours on screen, includes 2 games Oscar and Diggers. Amiga 4000030
Includes A4000, 030 processor, 2 Mb Chip RAM, 80 Mb Hard drive.


## speed Mouse

- 290dpi resolution
- 2 Microswitched buttons
- Opto/Mechanical mechanism
- Switchable between Amiga/ST
- Direct Mouse Replacement

Speed Mouse
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- 880 K formatted capacity
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Plugs straight into A600 trap door compatible with A600, A600HD

A1230 Accelerator

- 40 MHz 68030 accelerator
- Makes your Amiga 1200 run over 7 times quicker
- Allows up to 32 Mb RAM
- Optional FPU

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£199.99
Includes 12 Months on site warranty (Mainland UK)
Samsung C13352X £179.99
$14^{\prime \prime}$ SCART input TV with remote control and on screen display (requires SCART cable for high quality display)
Samsung C15322X
£249.99
$20^{\prime \prime}$ TV with SCART input for high quality display of computer output.
Features remote control, on screen displays, Auto tuning
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£399.99
The Microvitec 1440 is a multisync monitor compatible with the A1200. Includes setup memory for different resolutions.
Colour SVGA Monitor $£ 229.99$
High quality Colour SVGA Monitor .28 dot pitch.
A1200 VGA adaptor $£ 14.99$
Falcon VGA Adaptor $\quad \mathbf{9 . 9 9}$
Philips SCART to Amiga $£ 9.99$
8833 MKII to Amiga
£9.99

## Falcon 030

- 16 MHz 32 bit 68030 Central Processor, 16 MHz Blitter, 32 MHz 56001 Digital Signal Processor
- $1.44 \mathrm{Mb} 3.5^{\prime \prime}$ Floppy, up to 14 Mb RAM. Displays 65536 colours from 262144 palette
- 8 Channel, 16 bit, high quality Stereo sound sampling
FALCON 1Mb No HD £499.00
FALCON 4Mb No HD $\quad £ 699.00$
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Repair Services
Our Service department can repair Amiga's in minimum time at competitive rates. We can arrange for courier pickup and return delivery of your machine to ensure it's safety. We even have a same day service which will ensure your machine is given priority and subject to fault, completed the same day. We offer a Quotation service for $£ 15$ for which we will examine your machine and report back with an exact price for repair. If you do not wish to go ahead with the repairs then just pay the $£ 15$. However 2 you do go ahead then the charge is included in the minimum charge. Please note: The minimum charge covers labour, parts are extra.

| Quotation service | $£ 15.00$ |
| :--- | ---: |
| Min repair charge | $£ 35.25$ |
| Courier Pickup | $£ 11.00$ |
| Courier Return | $£ 7.00$ |
| Same day service | $£ 15.00$ |

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Game CD32 ?

SALES of Commodore's CD32 console are being lost because games promised for the system are not appearing on time, Amiga Computing can.

More than 40 titles were originally promised for the machine by Christmas, but we have learned that launch dates are slipping on many.

At the time of going to press only a handful were available, although Commodore had earlier expected 18 to have been on sale by the end of September.

Many are now promised within the next few weeks, but without high quality software on sale during the early Christmas buying period, some shoppers are turning to alternative systems.

Sega and Nintendo have just unveiled new packs and although their machines offer lower specifications, console buyers are being attracted by their huge software catalogues.

Darren Booth, the assistant manager at one electronics store in Manchester, told us that some customers who look first at the CD32 are then buying a Sega or Nintendo console. He said people are impressed by the number of games available - and especially Sega titles Street Fighter and Mortal Kombat - although he was satisfied with CD32 sales so far.

Of the developers, Millennium have stuck close to their


The firm's spokesman Steven Hayes said legal complications are holding back the release of Jurassic Park and CD32-specific titles are taking longer to program than planned.

Thalion's Tony King, meanwhile, said his company have scrapped plans to support the console, although the rights to Lionheart have been passed to another software house.

And at System 3 operations manager Tim Best said: "We are certainly making a heavy commitment to CD32 - but we're not rushing into it."

He explained the firm will be launching at least one
game in the next few weeks but certainly not the four Commodore claim are due from the company by the end of the year.

Several other companies reported products in the final stages of development, although said production of some had slipped. Gremlin, one of the biggest CD32 developers, were unavailable for comment.

Commodore spokesman Tim Green was unaware of the delays and expected around 40 CD32-specific titles to be available by Christmas as planned.

## Word processing talkes the professional route

THE publishers of Amiga word processors Final Copy II and Pen Pal claim their latest package produces documents as professionally as expensive PC and Apple Macintosh systems.

SoftWood's (0773 836781) Final Writer uses one-touch Command buttons to enable the user to create documents easily, with many functions accessed by a mouse click. Its features include auto-indexing, a
table of contents, a table of illustrations, spelling checker, thesaurus and several graphics functions.

It has a comprehensive range of print options and uses PostScript font outlines for high quality output without the need for a PostScript laser printer.

But people using such a machine will find a range of extra benefits, such as thumbnails - small icons showing how the
document will print - scaling, half toning and crop marks.

The $£ 129.95$ package comes with more than 100 typefaces and 100 EPS clip art images. It needs at least 1.5 Mb of memory and a hard drive.

- See how Final Writer matches up to the competition in our word processor roundup starting on page 32


Final Writer: Meeting professional standards

# More Good! Neus from Mispodleu! 



O

## Music

## Clarity16


version 1.5

Clarity16 is our premier, professional sound sampler allowing rates up to 32 KHz in 16 bit stereo and up to 48 KHz in 16 bit mono on a standard Amiga; accelerated machines can handle faster sampling rates.
The software provides extensive features including full edit control, a MIDI keyboard emulator, a sample sequencer, many special effects, FFT analysis and much more.
New Version 1.5 has an up-to-date Workbench 3 look, in its own window and includes many enhancements allowing full compatibility with faster Amigas.

## Megalosound

Our brand-new, 8-bit stereo,
direct-to-disk budget sampler is now shipping.
The Megalosound software is packed full of easy-to-use editing features, special effects and extras such as the ability to print waveforms and sample information.
The package allows sampling up to 84 KHz mono and 56 KHz stereo to memory and up to 21 KHz stereo to hard disk on an A1200. Supplied with a hardware volume control and an extensive 144 -page manual, Megalosound is impressive value at only $£ 34.95$.

## Pro-MIDI Interface

This interface allows you to connect a MIDI system to any Amiga computer via the serial port of your machine using a single multi-core cable. The interface sits conveniently next to your computer and provides MIDI In, Thru and two Out connections. Pro-MIDI is compatible with all leading Amiga MIDI software and comes complete with a miscellany of MIDI PD utilities on disk.


## VideoMaster AGA

VideoMaster combines the beauty of a video digitiser, the fun of a sound sampler and some superb sequencing software to provide a true Multimedia system that is a joy to use. This is the one package that you need for producing high quality stills \& 25 frames/second movies with sound!
New A1200/A600 version. Previously, only A500 owners have been able to take advantage of VideoMaster; now A1200 and A600 users can work with this amazing package and enjoy brand-new features such as superb HAM 8 (A1200 only) and $640 \times 512$ digitised stills and $160 \times 10025$ frames per second monochrome video with sound. VideoMaster AGA plugs into the PCMCIA slot thus leaving your Amiga free for further expansion.

## ColourMaster

To complement the VideoMaster
 system, we have developed a high quality RGB colour splitter which allows you to automatically digitise full colour movies/stills, directly from the VideoMaster software. The splitter is packaged with VideoMaster RGB.

The picture above is an un-retouched shot taken outside Microdeal's offices with a Panasonic camcorder and digitised with ColourMaster and VideoMaster AGA, all within a few seconds!


| Prices |  |
| :---: | :---: |
| Clarity 16 | E149.95 |
| Megalosound | E34.95 |
| Pro-MIDI Interface | E24.95 |
| VideoMaster AGA | E79.95 |
| VideoMaster RGB | £139.95 |
| ColourMaster | £69.95 |

etc.), please call Micrndeat on +44 (0) 525713671 , or fax 1 is on +44 (0) 525713716 or write to us at: The Ohid School, Grenfield, Beiffont MK45 5DE UK.

## News Briefs

## More storage inside

FOLLOWING the success of their external 1.76 Mb high density disk drive, Power Computing (0234 343388) have developed an internal version for all Amigas. It costs around $£ 80$.

## Render price bender

CALIGARI have slashed the price of rendering and animation package Caligari 24 in a bid to oust competitor Real 3D from its market stranglehold.
Meridian Software (081-543 3500) will be selling the state-of-the-art system for $£ 99.95$, while they have announced a $£ 329.95$ price tag for Caligari Broadcast.

## CBM to go live

COMMODORE have confirmed they will be exhibiting at next year's Live 94 consumer electronics show following the overwhelming success of the first event held recently in London.
It was the company's first chance to show the public their CD32 console which, say Commodore, was a key attraction throughout the five days.

## Going to film

ALTERNATIVE Image (0533 440041) are now able to output common Amiga image files to 35 mm film. Prices vary depending on the number of pictures for one file the cost is $£ 6$.

## Scanner mix-up

A COUPLE of errors slipped into last month's scanner round-up. The Migraph Colourburst sells for $£ 399$ and the AlfaData and Migraph range are distributed by Golden Image (081-518 7373).

## Pourer talke on genlocks

POWER Computing (0234 843388) are set to take on distribution of Lola genlocks MiniGen and MiniGen Pro. Prices will be $£ 49.95$ and $£ 149.95$ respectively.

## Printer malker targets Amiga

CITIZEN are set to target the Amiga market as part of a new strategy aimed at making the firm one of Europe's key printer suppliers.

They will make hi-spec, lowcost, colour-capable models for office and home users, and have already announced details of new products for that section of the market.

The ProJet II inkjet offers laser-quality output at 300 dots per inch and speeds of three pages per minute in draft and two pages per minute in letter-
 quality mode.

The $£ 304$ machine contains three letter quality fonts - Courier, Letter Gothic and Times Nordic - and a built-in sensor which detects when ink is running low.

But Citizen see one of the machine's biggest strengths in its low running costs - claimed to be two pence per page.
"Separating the ink cartridge from the print head allows the cartridge to be replaced 12 times on average within the life of a single print head," said marketing manager Julie Haswell. "This keep running costs substantially lower than many other inkjet printers, where the head is disposed of at the end of the life of each cartridge."

A colour version of Projet II will be released early next year, at which time the firm will also launch $A B C$, an "ultra-low end" dot matrix machine targeted at first time printer buyers.

It will come with Amiga software designed to help newcomers get started and automatically install drivers, and have a print speed of 192 characters per second in draft mode.

In letter quality mode the speed will be 72 cps , and users of the $£ 233$ machine will have a choice of five fonts. An optional colour kit will cost $£ 29.99$.

## Top graphics come on card

A 32-BIT graphics card has been launched for Amiga users who want to give their computer broadcast-quality paint, 3D modelling, morphing and computer-aided design capabilities.

Director II features 24 -bit live image capture, a digitally-designed genlock in 525 or 625 lines giving improved stability and scrolling of full screen 24 -bit pictures.

It contains 4 Mb of VRAM and 4 Mb

CPU DRAM as well as an on board TMS34020 processor with optional coprocessor. An expansion port enables extra memory and accessories to be fitted.

Output can be scrolled from an internal buffer of $1,024 \times 1,024$ pixels in 32bit, and horizontal resolution is programmable from 640 to 1,500 pixels.
Cost, $£ 2,226$ from Tritec Marketing 081-991 5591.

## CD quality sound on a budget

DIGITAL Audio Designs have developed a high resolution budget 16 -bit sound system that is claimed to improve the Amiga's sound to CD and DAT recorder quality.

Wavetools uses the computer's hard disk drive to record, edit, mix and play back audio, has a frequency response of 10 Hz to 20 kHz and a dynamic range of 85 dB .

It employs 64 x oversampled Sigma-Delta conversion technology and comes with a pair of stereo I/O jacks for linking to any device with standard Line In and Line Out connectors.

Voice-overs and other sound effects can be added to produce clear audio tracks for special productions.

Multiple waveform windows can be open at the same time and sound cut and pasted between open files to help build complex audio tracks.

There is support for digital mixing of unlimited numbers of tracks, and using Wavetools' mixer it is possible to layer sound upon sound to make high quality full audio tracks.

A range of editing and mixing features are available including overdubs, perform, ADR and the ability to place sound effects at specified points in the track.

An editor can be used to cut, copy, paste and mix selected parts of audio waveforms.

An internal time code is maintained in the format of SMPTE 24, 25 and 30 frames per second to ensure synchronisation of audio files with video and animation.

The $\$ 350$ card plugs into accelerated A2000s plus A3000s and A4000s. The US firm are looking for a British distributor but in the meantime can mail the package to UK customers.

They can be telephoned in California on 01017145625926.

## PageStream set for features boost

THE US makers of Amiga desktop publishing software PageStream have announced details of an improved version of the package due for launch early next year.

PageStream 3 contains several new functions, including extra trapping and plate control functions which Soft-Logik say make the program a leader in the pre-press field.
A dual paragraph and character style system gives the options style override, style ripple and object styles and makes it easier to apply attributes to text and objects.
Its toolbox can be swapped between small, large, vertical and horizontal layouts, while floating panels for fonts, colours, styles, macros and pages aid editing.
Document formatting has been improved with auto-kerning and auto-hyphenation, text styles are configurable and tab allows left, centre or right alignment on any character.
The industry standard Pantone Colour System is used to
ensure colours are printed accurately and there is support for spot and process colour, CMYK, HSV and RGB.
A Soft-Logik spokesperson said: "It's not just an upgrade but a completely new program. We have rewritten it from the ground up and have added hundred of new features.
"With PageStream 3, the Amiga now leads all computer platforms in desktop publishing innovation."
It is expected to cost $£ 319$, but Amiga owners who have bought PageStream 2.2 since March 15 can upgrade by sending their registration card, receipt and \$5 for postage to Soft-Logik.
Other owners of PageStream 2 or higher can upgrade for \$125. The St Louis-based developer can be telephoned on 01013148948608 and dealer Meridian Distribution on 081-543 3500 .

## Bigy bucks for big memory

SIXTEEN megabyte memory chips are now available to A1200 and A2000 owners using Great Valley Products accelerators - the bad news is they cost $£ 1,299$ each.
High speed, high density modules give GForce040/33 and A1230 Turbo+ owners the ability to increase their memory by a factor of four to 64 Mb and 32 Mb respectively.
Andy Leaning, spokesman for GVP's British distributor Silica Systems said the chips are aimed at users of memory hungry applications such as computer-aided design.

He said that whereas most Amiga memory has a speed of between 70 and 80 ns , this RAM works at a higher rate of 60 ns and blamed the high price tag on the technology advancement. A fitting service is available from the firm, who can be telephoned on 081-309 1111.

## Golden upgrades for Amigas

TWO upgrades for owners of top-end Amigas have just been added to Londonbased distributor Golden Image's (081365 1102) range of products.
Multiface Card III expands the computers by adding two serial ports and a parallel port working at high transfer rates.

Through multi-tasking, the ports can be used simultaneously and are claimed to be suitable for mailbox, modems, plotters, lasers and networks.

Oktagon 2008 is a SCSI-II controller that can be expanded with up to 8 Mb of memory and allow seven SCSI devices to be connected to the machine.

It features auto-reading of SCSI unit parameters, automatic disk change detection, login and password protection and comes with virtual memory Gigamem.
Both work with A2000s, A2500s, A3000s and A4000s and cost $£ 129$ each.

## Books offer Amiga advice

BRUCE Smith Books ( 0923894355 ) have just published a new title and announced details of others due in the next few weeks for Amiga users who want to learn more about their computer.
Mastering AmigaDOS 3 - Reference is a guide to the A1200 and A4000 version of AmigaDOS, covering more than 140 commands in 416 pages. Each appears with a synopsis and templates and where appropriate there is a cross-reference with other commands.
Practical examples are given and there is material on Preferences, hardware support, AmigaGuide/MultiView, hard drive backup, IFF and Exchange Qualifiers.
Amiga A1200 Next Steps will assume basic knowledge of the computer and show how to progress onto greater things such as programming in MultiView and installing a hard disk.
Absolute beginners to machine code will be taught how to program the A1200 by Paul Overaa in Amiga Assembler Insider Guide. And enthusiasts interested in learning more about the Workbench will be helped by the firm's fourth book A miga $A$-Z Workbench 3 .

## Scamning systems improve at Ponver

PERIPHERAL manufacturer Power Computing ( 0234843388 ) have improved their scanning software and are set to launch a colour hand scanner which plugs into the Amiga's parallel port.

Software Power Scanner 4 has a redesigned interface, the ability to add text to scans using any font and size, auto colour sections of grey scale scans and a


Power Scanner: New software and parallel port model full Undo feature.

There is manual or automatic resolution selection, an improved print control menu, ability to create 16,64 or 256 greyscale images and full 24 -bit scan handling.

The company's new colour hand scanner, meanwhile, plugs into the parallel port of any Amiga, making it available to owners of A600s and A1200s.

The $£ 200+$ device gives 4,096 colours on non-AGA computers and 262,144 on machines with the latest graphics. It comes with v4 of the firm's software.

## Video titles in 24-bit Iink

MONTAGE 24 is a 24 -bit video titling and graphics package just introduced by Innovision Technology, the American makers of Broadcast Titter II and Video Effects 3D.

It uses IFF, HAM-8 and Toaster images for backgrounds and logos and can be used to generate colour spreads, bevelled boxes and tile patterns.

The program features translucency blending for text and graphics and its eight scalable fonts can be resized by click-and-dragging.

Characters are anti-aliased to whatever background they are put on and effects include variable transparency,
gradient colour fills, embossing and outline and cast shadow features.

Kerning can be done automatically or manually and any combination of fonts, sizes and colours can be used on each line.

Montage 24 works with AGA Amigas and those using Opalvision, GVP's IV24 or a Video Toaster. An optional module allows PostScript and Compugraphic fonts to be imported.

Meridian Software (081-543 3500) and Micro-Pace (0753 551888) are among the companies selling the package in Britain. Price, around £330.

## Long life head for inkjet

SPEEDJET 200 is Seikosha's latest contribution to the budget end of the ink jet printer market, with its key feature being a long life printhead.

It can be refilled up to six times from separate cartridges in an operation which Seikosha claim is easy, environmentally sound and cheap.

This model has $300 \times 300$ laser quality resolution, a maximum format of 80 columns at ten characters per inch and a print speed of three pages per minute.

Paper handling is semi-automatic manual feed suitable for single sheets, envelopes and transparencies although there is an option for an automatic sheet feeder which can hold 70 sheets.

It comes with 128 k of memory and is HP DeskJet+ compatible. Extra memory and emulation cartridges for Epson LO850 and IBM Proprinter are available.

The recommended price is £276 but expect to find it much cheaper at most dealers.


Speedfet 200: Features a long Mife printhead

## Font editor's features grow

DESKTOP publishers are targeted for an improved version of Soft-Logik's (010 1314 894 8608) Amiga outline font editor, TypeSmith.

Version two of the program can load. save, edit and generate bitmap screen fonts and for the first time enables users to create them manually or automatically from an existing outline font.

Hints improve the look of fonts at low reolution and at small sizes. TypeSmith loads those created by other programs and will save them without making changes.

It can generate hints for new or modified fonts, and can convert PostScript hints in Intellifont format.
Registered owners of the software will receive upgrade details directly from SothLogik but for newcomers it will cost $£ 1695$ from Meridian Distribution ( $081-5433500$ ).

Rombo, are proud to announce the launch of their new range of Multimedia Digitisers.

Each digitiser has been designed with total flexibility in mind, by offering a cost effective upgrade path between models. Giving the user complete peace of mind, and the freedom to choose a digitiser for his present requirements. But reassuring him, that if those change, he can move up to the next model. All Vidi Amiga's now have a similar user interface, so moving between products is easy !

Vidi Amiga (12) RT, offers all the functionallity and specification of Vidi (24) RT, but in 12-bit. Capturing 4096 colour images in real-time from any video source. This includes TV, Video Recorder, Video Camera, Satellite etc. etc.

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All the pictures shown on the full page Vidi Amiga (24) RT advert represent the actual printed output quality that can be achieved. Simply by sending the finished image file to a Bureau for output.

Throw away your scanner, its too much like hard work !
1 for an 101314 editor,
n load, en fonts o create rom an

R(ombu, Bailrd $\mathbb{R} d$, Kinnlktonn Campus, Livingston, Scotland. Tel: 0506414631 Fax: ()5() 414634

Imagine 3.0 was nearing release as this column went to press. The new version of the 3D rendering program, which will be available for both Amigas and MS-DOS machines, has tons of new features.
The new real-time interface makes image composition much easier and more intuitive. A 3D font editor lets you create text within the program, and the new and improved deformation control makes warping text and objects a snap.
The program also sports improved anti-aliasing and full kinematic motion control, which lets you easily create complex, natural motions in your animations.
AGA support is there, of course, and over 100 new textures make for more realistic objects. There's a lot more here as well, and Imagine 3.0 promises to give Real $3 D$ and Lightwave 3.0 a real run for the money. Look for in-depth coverage in an upcoming issue.
For more information on the upgrade, contact Impulse, 8416 Xerxes Ave. North, Brooklyn Park, MN 55444; Phone (612) 425-0557; Fax (612) 425-0701.


An illustration created in Imagine 3.0 for the cover of Rodriguez-Soussan
Productions' Imagine: The Possibilities, Unlocking 3.0 tutorial videotope


Bevelled PostScript fonts were imported into Imagine 3.0's Spline Editor to create this picture; the background illustrates the new Gas Giant texture


Imagine 3.0's new particle
effect can be used for creating
organic effects in animations

> Denny Atkin reports on the impressive new features of Music-X 2.0 , and rounds up the rest of the news from the States



Amiga Midi musicians will be happy to hear that Music-X is back on the market, now from HollyWare. The latest update, v2.0, sells for $\$ 199.95$. It includes new modules such as DeFlam, Quantizer, RexxEdit for creating customised macros, and PrintEventList.

It now supports more than a dozen additional Midi commands and can play sounds using your Amiga's audio capabilities as well as Midi - the Amiga voices are great for percussion effects.

Music-X 2.0 supports Blue Ribbon's One-Stop Music Shop, as well as the Alesis ADAT and AI-2. Upgrades from Music-X 1.0 are $\$ 100$.

If you liked the original Music- X but found it difficult to compose music using it, you'll love Notator-X.

This package is a score-writing program that works with Music-X 2.0 and any sequencer that supports the Midi file format. The program uses standard notation and supports notes, chords, rests, dynamics, angled beams, groups, ties, octave symbols, text frames, and more.

You can have up to 32 tracks on 18 staves, as well as five lines of verses with a maximum of three different endings in a score. The Lyrics Editor automatically aligns lyrics under the notes on the staff, including words split up over several notes.

The program costs $\$ 79.95$. For more information, contact HollyWare Entertainment, 13464 Washington, Marina Del Rey, CA 90291, or call (310) 822-9200.

## Nothing's Final...

SoftWood is not your typical software company. Standard industry practice is to start advertising - or at least hyping - products many months before they're available. Not SoftWood, though. The company released the new Final Writer word processor before advertisements even hit the US magazines, and only scant days after ads appeared in the UK.

This new word processor resembles Final Copy II, but sports tons of new features. It's more comparable to the expensive professional PC word processors than competing Amiga products.

It borrows the popular button bar concept from Windows programs such as Ami Pro or Word for Windows 6.0. It has 180 different buttons which you can drag and drop onto up to eight strips (you could create one strip for graphics functions, one for text formatting, and so on).

You can not only map built-in Final Writer commands to the buttons, but also AmigaDOS commands, and ARexx commands and scripts. You can even map text strings to them, so you could create a button to automatically insert your name and address in a document.

Final Writer has full support for loading IFF graphics, like Final Copy II, but it also supports Encapsulated PostScript (EPS) outline graphics. Unlike most programs, Final Writer will print EPS
graphics on non-PostScript printers. Graphics, as well as text, can be rotated on the page in one-degree increments.

You can even group graphics - Final Writer crosses the word processor line into desktop publishing territory in many respects.

That's not to say the program skimps on word processing capabilities. Along with all the standard editing capabilities you'd expect, as well as a high-quality spelling checker and thesaurus, Final Writer also sports sophisticated indexing capabilities.

Other professional features include Table of Contents, Endnotes, Bibliography, and Outline generation. You can even create a Table of Illustrations for the graphics used in your document.

Smart hyphenation makes for professional-looking text, and sectioned documents with multiple master pages makes long-document publication easy on the Amiga for the first time.

If that wasn't enough, Final Writer also includes 120 high-quality PostScript outline fonts (it supports Compugraphic and NimbusQ fonts as well), 100 EPS clip-art images, and 25 ARexx macros.

US upgrade prices are $\$ 55$ from Final Copy II Release 2, \$65 from Final Copy II, $\$ 75$ from Final Copy, and $\$ 100$ from Pen Pal. Contact distributor Gordon Harwood Computers for UK upgrade prices. SoftWood can be reached at PO Box 50178, Phoenix, AZ 85076; phone (602) 431-9151; fax (602) 431-8361

# You cant use Software this Powerful, and produce Documents this Good... 



Unless, you buy an expensive PC or Macintosh ${ }^{T \mathrm{M}}$. a high priced Colour PostScript ${ }^{\mathrm{TM}}$ Laser Printer, and a complex, costly Desk Top Publishing Package...

If you're looking for a quality Word Processor/Publisher that performs as well as this, you may well start by searching through IC and $\mathrm{Apple}^{\mathrm{TM}}$ Macintosh ${ }^{\text {TM }}$ software catalogues.

Even then though, you probably won't find a program that will combine the very best in Word Processing and... easy to use integrated DTP type facilities.

You certainly can't find software for your Amiga that's capable of all this...

when Kenneth Clarke made it clear that this autumn's budget would include the imposition of VAT on magazine, book, and newspaper sales, the publishing business groaned as one. When he later hinted that he wasn't in favour of the eight per cent middle tax rate, the groan became a wail of despair.

It doesn't take a maths professor to work out that 17.5 per cent VAT will hike the cover price of a double disk magazine by 80 p, bringing the $£ 5$ computer magazine a step closer.

Ordinary single disk magazines, which currently sell for about $£ 3.25$, will increase in price to around $£ 3.82$, making them almost as expensive as double disk issues are today, and the effects of such swingeing increases could be very damaging to the industry.

The Amiga enthusiast is a voracious reader, and surveys carried out by the major magazines have always confirmed that many of us buy two or three different titles a month.

However, this sort of broad reading habit will cost $£ 1.60$ more once VAT descends like a financial damp blanket, and if readers start to restrict themselves to fewer magazines, sales as a whole will feel the squeeze.

Now this could just be the whinging of a group of profitable companies who are unwilling to do their bit to dig us out of our "awful hole", to quote one Cabinet minister, but as the Amiga industry as a whole depends on publicity to get the message about new products to the public, falling magazine sales could damage everyone.
In a worst case scenario, one or more of the smaller magazines might even wind up, a danger which particularly threatens the games-only titles. Pressure from consoles and the PC is one thing, but when it is aided and abetted by the Chancellor, things could get sticky.

The last audited circulation figures for the big three magazines - Amiga Computing, CU Amiga, and Amiga Format - showed healthy increases in sales (our own went up by $13 \%$ ), confirming that the Amiga has made a come back thanks to the competitive price of the A1200 and the continuingly high standards in software.

When the market is on such an upswing after a lengthy recession, the prospect of its publicity being restricted by government taxes is an even more alarming one.

Things aren't all black, of course, and we at least don't have a magazine market which depends entirely on low prices for its sales. The PC shopping magazines, some as big as telephone directories, depend on very low cover prices and huge sales to keep readership up and draw in the advertising revenues. If VAT takes the price of such a


Whether you call it a tax on knowledge, sensible fiscal policy, or a desperate attempt to retrieve the $£ 50$ billion deficit from the man in the street, VAT on magazines is about to happen, and it won't be good news for publishers or their readers
magazine closer to the point where it is no longer a cheap impulse buy or second purchase, it could lose ten per cent of its readership at a stroke, with a subsequent loss in advertising. Everyone will be taxed at the same rate, of course, but the effects will depend upon each magazine's market position.

What is giving everyone in the publishing business a headache at the moment, though, is the fact that no one really knows what will happen next April when the price of the printed word rockets.

You, the reader, will suffer directly by paying more for your magazine, but in the long run a few benefits could come your way. A VAT-induced price rise, if it results in restricted sales, might prompt the major magazines to offer even more generous promotions than before, and we all know what that means. Intense competition in the Amiga
magazine market has led to the free distribution of superb commercial software worth, to date, hundreds of pounds, the cover mounting of useful books, such as seen on last month's $A C$, and a huge increase in the number of competitions, reader offers, and other inducements to part with $£ 4$.

Not many readers would complain if this marketing war was to step up a notch and bring even better freebies to the newsagent's shelves.

One definite opportunity next year will be your last chance to beat the tax by taking out a subscription just before the rise comes into force. At a stroke, any regular reader will be able to save 17.5 per cent, and probably a lot more, as we bung our usual subscription offers on top, so keep an eye open if you intend to buy Amiga Computing in 1994.

Stevie Kennedy

The AC team

$$
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\text { ASSOCIATE EDITOR } & \text { Paul Austin } \\
\text { ART EDITORS } & \text { Tym Lecky } \\
& \text { Terry Thiele } \\
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# You Can Now... with New Final Writer 

From the publisher of the acclaimed Final Copy II comes its new companion, Final Writer - for the author who needs even more! If you already use an Amiga Word Processor, it won't include the complete and comprehensive array of features found in this latest addition to the SoftWood family. Can your Word Processor...
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$\square$ake 2 is a combination of what is known as a "line tester" and an animation editor, and is designed to be used in conjunction with a paint package such as DPaint or the Vidi Amiga digitiser.
For all those millions of Amiga owners who have a copy of DPaint and the thousands who took advantage of our Vidi Amiga offer earlier this year, Take 2 is the icing on the animation cake.
The program will either control Vidi Amiga directly allowing users to grab video or hand drawn images straight into its frame bank, or accept a series of frames from an animation package such as DPaint, then give the user total control over the finished cartoon or movie.

Start by booting from the Take 2 CoverDisk (de-archiving won't work if you boot from another disk), then double click on the two icons it contains.

This will start a de-archiving process

Create your own cartoons and digitised extravaganzas with Rombo's Take 2 animation editor

which will create two disks, one containing the Take 2 program, the other crammed with sound effects for use in animations.

Once Take 2 has de-archived, re-boot with the newly created disk and double click on the Take 2 program icon. When the program loads you will be looking at a blank screen made up of five main columns, one for the soundtrack and one each for the four levels of animation


Take 2 will control.
This screen is the exposure sheet, or XSheet, and is the central control room for all Take 2 functions. With four levels of animation, the user has huge flexibility. For example, a DPaint animation
involving a couple of cartoon characters running around against a backdrop. such as Tom and Jerry chasing each other around a kitchen, involves the user in drawing all elements - Tom Jerry, and the kitchen - into each frame-

## Fusion Paint

Fusion Paint is a simple paint package lacking some of the advanced features found in DPaint, but it has a couple of very useful advantages. First of all it is faster than DPaint for many operations, and secondly it can be used to edit or create icon images.

As usual, Fusion Paint is archived on disk, so boot from the Fusion Paint CoverDisk and double click on the Make Fusion icon. The de-archiving process will format a blank disk and unpack the Fusion archive onto it, and once it's finished you should boot from the new disk.

The first thing you'll see on starting Fusion Paint is a screen format requester which offers a variety of screen sizes and number of colours for your new drawing. Choose one from the buttons on display or type a screen size into the string gadgets below, then click on start.

A blank screen will appear with the usual tool box down the right hand side. Most of the tools shown should be familiar as they are similar to the tools found in any other paint package. One major difference, however, is that when some of the tools are clicked on, a number of optional tools appear in the area below the main tool box.

Experiment with Fusion's drawing tools for a while. We won't be covering these in detail as they should be selfexplanatory.

Let's concentrate instead on exploring Fusion's icon features. Hold down the right mouse button and choose the Open... Icon option from the Project menu.

Click once on the screen to tell Fusion where to place the


The Fusion disk contains some great fonts
icon, then a file requester will appear. Now choose the Fusion Paint program file as your icon and load it up.

The icon will appear as two images, one which appears when the icon is first displayed, and one which is displayed when the icon is clicked on. This second image is known as the alternate image and should always be the right half of an icon image.

It is possible to load or save single icon images, and these are known as back-fill complement icons. This means that when clicked on the image simply fills in with another colour or changes to the complement colour depending on
whether there is an outline around the image or not.
For now we'll stick to alternate icons as they are mone fun, and create a little man who waves his hand when the icon is clicked. We'll need to draw a cartoon picture, so the artistically challenged should either leave the room or male sure no-one can come in half way through the tutorial.
Right, draw a head and shoulders picture of a person with upraised arm and a big cheesy grin. Fusion's freehand drawing tool should be all that's needed for this, though the circle tool could come in handy for the eyes and the zoom lens will be handy for small details.
Once this image is finished, click on the cut brush tool et has a pair of scissors on it) and cut around the little man. A cut window will appear in the top left-hand corner showing our brush, and if it meets with your approval, click on the Paste tool (it has a big brush on it).

## OUTLIINES

Now paste the brush one pixel to the right of the originall taking care to make sure that the outlines of the two images touch but don't overlap.
We now have two identical images and if we saved te icon immediately it would appear that nothing happened when the icon was clicked on, so we have to make changes to the alternate (right-hand) image.
Try changing the position of the arm or the facial expors sion until something approaching a reaction can be seen from one image to the next. So long as there's enough difference between the two images we'll know we've clicked a the icon, so feel free to indulge yourself. The zoom lens (magnifying glass tool) is particularly useful for this sort af detail work. When the alternate image has been edited $=$

then place the samples at the right point in the action


## and vision

Using Take 2, the user can create the two animated characters and load them as levels one and two, then the kitchen backdrop and load it as level three. When Take 2 plays the animation back to the user, the three levels are superim-
posed on each other and a frame made up from all four levels.

Levels can thus be edited separately from each other without the hassle of having to re-draw an entire frame, such as would be the case in any other ani-
mation package. Remember - Take 2 is not an animation creation program, but an animation controiler and editor.

To demonstrate the program in action, the Take 2 disk contains a simple two-level animation called "arrowhit"
which we will now load. Hold down the right mouse button to reveal the menu bar, and choose the XSheet menu. There is a load option with three subitems to enable the loading of tracks, an
your taste choose the Save As... Alt icon option from the Project menu. To save the icon we must tell Fusion where it is, so we must now draw a box around our waving man.

Make sure that the box is tight around both images with no space to spare, then click the left mouse button, at which point a file requester will appear.

There's no need to save your icon with the usual info extension, as Fusion saves the image as an IFF brush and that brush as an icon for itself. If you save to the RAM disk, go back to Workbench for a quick look at your finished icon.

Another of Fusion's more advanced features is its use of text and fonts, and there are several superb fonts on the Fusion Paint CoverDisk. First, let's select a font by clicking on the Font gadget, which is denoted by two Fs.

Fusion will search the current fonts directory, which


Using Fusion's zoom feature on an icon
should be its own if you have booted from the Fusion disk, then present you with a list of those it has found. For now, choose the Camelot font and click on the disk icon in the lower right-hand corner of the tool box to load the font from disk.

Now that we have a font, click on the text tool (it has a large T on it) and you should see a string gadget appear on screen. Type whatever text you require in here and press Return.

The text should appear on-screen and you can position it anywhere by clicking at the desired position or dragging it around with the left mouse button.

Once satisfied with the positioning, click on the checkmark box in the lower right of the screen to fix the text in place, at which point you should notice the next line of text is waiting below the first, neatly justified.

Fusion's third special talent is its ability to grab screens from any other package currently running. To do this, simply select the grab screen option from the main menu bar and confirm that you would like to proceed. Fusion will then wait ten seconds and grab whichever screen is presently being displayed.

All the user need do is set the grabbing process going, then flip to the screen to be grabbed using left Amiga- N or M and wait for two yellow flashes.

The first warns you that grabbing is about to take place, the second that it has finished, and when you flip back to Fusion, the screen should be loaded up ready for editing.

That's about all we have space for in these pages, but the remainder of Fusion's features need little introduction. The program works in much the same way as DPaint and other paint packages, and if you have any real difficulties, there's a generous manual offer on a page not a million miles from here...



XSheet, or a complete scene, so select the scene option.

When the file requester appears, go into the Take 2 disk directory and click once on the arrowhit directory to highlight it, then click on Load. Take 2 will scan the directory for scene information and any images the scene contains, then load the whole lot into memory.

The file requester stays on-screen in case the user wishes to load more than one set of files, so click on Cancel once disk access is complete and take a look at our new XSheet. Levels one and two
now show the images used in each frame of the animation, and the soundtrack column is blank.

This tells us that there is a backdrop image called "background" and a second level containing no images until frame 13, then a series of fites from an animation. We need to take a look at what we've loaded, so click on the Flipper button at the bottom of your screen.

What you should see is a simple black and white animation of an arrow hitting a tree, and the action will loop until you hit the right mouse button. Do this now and examine the Flipper control panel which appears over the animation.

## CARTOON

All controls function in the same way as their VCR equivalents, so users should be able to zip back and forward through the cartoon with liftie difficulty.

Above the VCR controls there are a number of information fields showing which frame of the animation we are currently on and which images are being shown in the different levels. We can use this information to decide exactly when the arrow hits the tree, at which point we'll add a sound effect.

Click on the single forward arrow to advance the animation one frame at a time untll we get to trame 16. This is the point at which the arrow first hits the tree, so now we know where to start playing the sound effect.

Now click on Quit Flip to go back to the XSheet, hold down the right mouse button, and select Sample Panel from


You can load two samples at once
the Panels menu. A blank panel will appear which shows no files until we load one, so make sure that the window is active by clicking on the Samples title bar, then hold down that right button again.

A single menu appears enabling you to load, save, or delete samples, so setect toad 88VX (the Amiga's standard IFF sound sample format) and make sure the sounds disk we de-archived is in a spare floppy drive. If you have only one drive, swap disks before selecting load.

Choose the Sounds disk from the file requester, then the Effects drawer. A number of special effects samples should be on show, but we only need two - one for the arrow being fired, the other as it hits the tree.

Click once on the jump and spring samples to highlight them, then on load to add them to the samples IIst, and finally on Cancel to get rid of the requester.

Adding the effects to the animation is simply a matter of clicking on the sample from the list shown in our sample
panel (there should only be two), then on the leftward pointing arrow on the right-hand side of the window.

The mouse pointer should now turn to a "To" and we can add the sample by clicking in the soundtrack column nert to the frame at which the effect starts to play.

Follow this process to add the spring sample to the soundtrack at frame 16. then go back to flipper and watch the animation again. Sounds better, doesnt it? Now what do we do with the jump sample?

You'll notice by looking at the soundtrack that each sample lasts for several frames, and if we try to put the next sample at, say, frame ten, the spring sample will be moved down to accommodate it, moving it out of time with the visual event of the arrow hitting the tree.

## GADCETS

At the top of the sample panel wil dow there are four gadgets which repisent the four soundiracks you can have in any Take 2 animation. There's only enough room on the XSheet window to show one soundtrack column, but if we click on the second gadget along. notice that the title at the top of the soundtrack column changes to soundtrack2 and we have a blank column in which to insert the second sample.

Easy, eh? Now insert the jump sam ple anywhere before frame 13 , which is where the arrow first appears, then $\mathrm{c} P$ back to flipper for another look.

We now have a much more attractive animation, but the two samples might

## Magic Menu

 Author: Martin KorndorferDo you get into a dither about drop downs? Are your pull downs a pain? Then you need a pop up menu system.
Pop up menu programs which replace the Workbench menus are nothing new and have been around for years now, but Magic Menu is one of the neatest and most attractive yet.
It runs as a Workbench 2 and upwards commodity eitier from Workbench or through the WBStartup drawer, and patches Intuition to replace the menus of any systemlegal program launched thereafter with its own much more glitzy offerings.

Once run, the program makes it possible to activate menus with a right mouse button click anywhere in the screen rather than having to move the mouse pointer to the menu bar. The menus will pop up (hence the name) right beside the mouse pointer, making it a faster and easier job to access them.

This sort of easy access can be a real boon when using a program which relies heavily on menus or if you're one of those users who can't be bothered to learn all those tricky keyboard short-cuts. For such users, Magic Menu offers a neat, stylish answer to all drop down dilemmas.

The program treats menus as two distinct types - pull down (the usual menu bar jobs) and pop up, offering the user a chance to configure how they work independently of each other.

When the right mouse button is held down while the pointer is in the menu bar, drop downs of the traditional

## 0| Magic Menu V. 27 ( 01.08 .93 ) coontrol alt space)

| Magic Menu V.27 (0.06.93) comiol alt spars |  |  |
| :---: | :---: | :---: |
| Pull Down Menu | Pop Up Menu | Keyboard Control |
| $\begin{aligned} & \text { Standard } \\ & \jmath \text { Sress once } \\ & \text { Select } \end{aligned}$ | $\begin{aligned} & \text { Standard } \\ & \text { St Press once } \\ & \text { Select } \end{aligned}$ | $\checkmark$ Enable <br> $\checkmark$ House to Bar |
|  | 5. 38 Look Lendard Look <br> $\checkmark \mid$ Senter Boxes | Start Sequence tconnand space |


| Tupe C\|Use Pull-Doun When Pointer in Menubar, Pop-Up Otherwisel |
| :--- |
| V\| Mark Sub Menus Double Borders Menu Timeout 18 |

sort are the result, but when held down anywhere else in the screen, pop ups appear. In this way, users can have their cake and eat it - pop ups for when they're feeling bodacious, drop downs for those "back to momma" days.

There are three ways in which either type of menu can work - Standard, Press Once, and Select. Standard is the usual way of holding the right mouse button down all the time the menu is visible, then releasing it when the desired option is highlighted, but the other two modi operandi are just a teensy bit radical.

Press Once is a method whereby the right mouse button activates the menu, which will then stay on-screen after the button is released.

As the pointer is moved, options are highlighted as if the button was still depressed, and the user just taps the right squeaker once more to make his or her selection. This

The best pop-up mena system for the Amige
is a good method for those with lazy fingers and lanes menus through which to browse.

Select is a little weird and works somewhat like a PC menu in that the right mouse button calls the menu to ter screen, then the left button is used to click on the options and sub-items. Not very trad, but good soul food for thom who use PCs at the office and need some serious ment bashing after a hard day's work.

To top of the bill of fare (pun definitely intendets Magic Menu gives one the option to control menas through the keyboard. Yes! Now you rodent haters $=$ discard the little beasties for ever and just tap left-Alt and left-Amiga at the same time to open the menus, then $=$ the cursor keys to navigate around them. A jab at ter Return key sets your choice in motion, and you can an back with a sigh and a well-deserved cigarette.

## nel win-

 h reprean have e's only ndow to ut if we along. of the soundlumn in

Guerlap by too much, or not enough, or you might decide that timing could be bether.

Ouit out of flipper and practice moving the samples around by clicking with the left button on the sample's highGghted first frame, then holding the mouse button down and dragging the sample up and down the soundtrack. A Bit of experimenting should see our samples safely in the correct place.

Of course, you might try a couple of samples in a search for the best effect, and in this case, removing unwanted stamples is easy. Just click on the sample's first highlighted frame on the soundtrack, then on the rightward pointing arrow on the sample panel.

To check a sample before inserting it in the soundtrack, highlight it by clicking on its name in the sample list, then click on the gadget at the top
right of the window to select all files, then on the black box with a white outline, which tells Take 2 to paste the pictures to the currently active level.

We can now see the animation by using flipper again, and add an effect or two. If you have a footstep sample, perhaps on hard drive or among your sample library, this might be a good time to use it.

Adding a second tevel is easy. Load DPaint and draw a simple road graphic which rolls into the background over an eight frame loop, stick a bush or lamp post in to give the illusion of movement. then save the eight frames in a directory on disk.

Make sure that the background is the same resolution as our example piccies (lo-res $320 \times 256$ ) as Take 2 won't mix pictures of different resolutions.

## COLOURE

This applies to colours as well, so you'll have to ensure that the road is a simple black-and-white test image. Take 2 is a line tester, as we've already mentioned, and is designed to help you try different animation ideas, then test them at the line drawing stage.

Levels show through each other as greyscale images, successive levels laying down on top of each other. so the furthest away level, or backdrop, should normally be in level one.

In next month's Amiga Computing we ll be looking at some of the more advanced uses of Take 2, so don't miss it. And why not check out our manual offer and buy a complete Take 2 manual and tutorial for next to nothing?

## CoverDisk Hotline

Amiga Computing operate a CoverDisk hotline on 0625859766 to help anyone experiencing problems. It is ONLY available on Thursdays between 2 -5pm so please do not try to call us at any other time as you won't get an answer.

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## DSound 130 <br> Author: Dave Schreiber

DSound is a simple utility which enables the playing of long samples direct from disk, hard or floppy, thus saving oodles of precious chip memory. It works from CLI only, and if you want to give it a go, type:

CD SYS:DSOUND 130 osound chenter

If you didn't boot from the CoverDisk, go immediately to jail, do not pass Go or collect £200, and make sure to replace SYS with the drive number in which the CoverDisk has been placed.

As the on-disk documentation points out, there are a number of parameters attached to this command. There are flags to play the sample through left or right speakers, set the volume, force the sample to loop, and lots of other handy stuff like that. Stop being lazy and gently peruse the documents if you don't believe me.

As a quick try-before-you-bother-to-read, how about:
DSOUND -0 -V15 -V CBEATER

This will loop the sample over and over again with the dulcet volume of only 15 from a possible 64 and won't display the DSound window, which is one good way to drive a friend or relative barking mad as they try to figure out how to stop the noise without rebooting. Ctrl-C will do the trick, just in case you're interested.

## DropBox

## Author: Steve Anichini

Yet another commodity program for Workbench 2 and above, DropBox is designed to take the drudge out of those boring household chores you have to do time and time again. You know - washing the dishes, de-archiving things, and the like.

By simply telling DropBox that any time a file is passed to it which has the suffix. .lha (to take only one example), the faithful little chap can be programmed to carry out an automatic command, such as de-archiving the file and placing the contents in RAM, thus saving you a lot of that opening Shell and typing in the command sort of malarkey.

When run, DropBox leaves an icon on Workbench onto which any icon or file can be dropped (DropBox, geddit?). The hapless file will be ruthlessly rushed to the program, thoroughly interrogated, and dealt with contemptuously. Sort of a Workbench friendly neighbourhood Bobby, when you think about it.

For a demonstration, run the program then double click on the DropBox left out on your Workbench screen. This will bring up an interface with a list of presets on the right and a number of options on the left.

To begin with, the program looks in ENV: for its presets, but for the purposes of the CoverDisk we've had to put them in the DropBox drawer, so hold down the right mouse button and select open from the project
menu. Load DropBox's prefs file and check it out.
The Lha entry, for example, tells DropBox that any file with the appender .tha should be dearchived with RAM: as the destination drawer. To add another, click on the Add button and type PPShow in the string gadget.

We don't have to bother about a destination as we know PPShow will send its results to the screen as a picture, so type PPSHOW in the command gadget to tell old thickie which C: command to invoke, then type [COM] [SOURCE] in the template string.

DropBox always need this basic template to tell it to carry out the specified command on the source, or file which had been dropped onto it. Finally, use the pattern \#?.iff and click on the output button. The program is now set up to use PPShow on any file with the suffix iff.

There are a thousand uses for this program, from viewing piccies and text, to launching ARexx macros, but you'll have to read the on-disk docs for a more detailed run down of the possibilities.



## Mousometer <br> Authors: W Breyha and M Matzl

A neat little Workbench hack, this program is designed to provide what must be one of the most pointless computer statistics of all time - the distance your mouse has travelled in kilometres.

Just run the program and watch the window in the top right-hand corner of the screen as your mouse is moved, drool as those metres mount up, then swagger off down the pub to lean nonchalantly on the bar boasting about how you ran that rodent ragged.

There's a high score table to keep track of those marathon mouse marches, and the About function which you can access from a menu tells you how many mites you have travelled, what this is as a fraction of the earth's circumference, and your average speed in metres per hour. All totally hatstand, as I'm sure you'll agree.

## Error <br> Author: Njal Fisketjon

How many times have you wondered why the Amiga is so coy about its errors? I mean, error 212 can mean anything, can't it? This program is designed to help with most common AmigaDOS errors by supplying a much more comprehensive idea of what went wrong.

If, for example, you get "Error 205 - File not found", you simply open CLI and type:

Error 205
Error will then tell you that you've


## Take the worry out of error messages

either got a device and a file mixed up or that you've typed a file name wrong, and suggest you check which directory you are in a try again. The program isn't an

AmigaDOS reference manual, but it could help cut down the confusion at those critical moments when you're tempted to shove the Amiga's keyboard up the dog's backside.

## Army Miner

## Author: Alain Lafferiere

Minesweeper is a game which has had many followers and many clones, but they all follow the same format. A grid of squares is littered with mines and you have to proceed to uncover all the safe squares by the use of your tired noggin

If an uncovered square has mines in any of the adjacent squares, it will show a number to tell you how many there are, and by working out the most probable free squares, you gingerly tap with the left mouse button until you clear the board or, as is more often the case, step on the wrong square and meet your bum on the way back down.

There are four levels of play: Beginner, Advanced, Expert, and Custom, each differing from the others in the size of grid to be cleared and the percentage of bombs on the grid.

An Undo button is available if you think you deserve another chance, and the game can be paused if you're playing against the clock and want to cheat, but otherwise this is just a very nicely presented version of an old favourite which, if you're an old fan of Danger UXB, you'll enjoy immensely.

## Move Author: Kai Iske

Workbench has always had a few missing bits here and there, but the one command Commodore have always left out for no apparent reason is a move command.

The author of this program got a little steamed up about it, and faced with the choice of either punching out every Commodore employee he could lay his hands on, or writing a move command of his own, he wisely chose the latter course. Move is a simple CLI command which does a simple job, but it does something that AmigaDOS normally makes a complete pain in the dangly bits. Use it with the simple parameter information found on the disk and you should have few problems.

For example, moving the move command from disk to your C: directory is a simple matter of typing:
nove nove to $c$ :
and there's no faffing around with copy, delete, or rename. Neat, eh?

> Think you can do better?
> Want to be famous? We are always on the look-out for quality Amiga programs for the CoverDisk. If you think you have written something good enough for others to share and enjoy, please send it in and we'll have a look.
> The Amiga Computing CoverDisk is used by thousands of Amiga owners every month in places all over the world from New Zealand to the USA, so if your submission finds its way onto the disk, you could be famous.
> Please make sure that you list ALL library and other files necessary for the program to work. Feel free to design your own icons for programs that run from Workbench, but please don't make them too big.
> If you ensure your program is as compatible as possible with a wide variety of Amigas, it will also stand a better chance of publication. We are especially interested in small programs whether they be games, utilities or whatever.
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> Your submission MUST be accompanied by the submissions form, a copy of it, or a signed declaration to the same effect. Please supply your full name, address and phone number.
> Unfortunately we cannot undertake to return disks sent to us as the volume of submissions makes this an impractical exercise.

Post your submissions WITH A COPY OF THIS FORM to:
Colin Yarnall, Amiga Computing, CoverDisk Submissions,
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# The Amiga Computing CoverDisk is designed to be as simple to use as possible．Follow these instructions and you＇ll be up and running in no time！ 

## Copying individual files

You might at some point want to copy a single program from a CoverDisk to your compilation，Workbench disk or even your hard drive．

To do this you＇ll need the COPY command．As most CoverDisk programs are stashed away in their own direc－ tories，the quickest way to copy a program is to copy the whole directory at once．Use the command：

## COPY（directory）To（newdisk）ALL

where \｛directory\} is the full pathname of the directory you wish to copy，and（newdisk）is the name of the disk and directory into which it will be copied．

For example，if you wanted to copy a utility called FRED from CoverDisk 27＇s Utilities drawer to a directory called FRED on your Workbench disk，you＇d type：

## COPY COVEROISK27：UTILITIES／FREO TO WORKBENCH1．3／FRED ALL

Alternatively，you can click once on the FRED directory icon and drag it across to the new disk＇s window．This has the advantage of creating a new directory for you and copying the icon as well．

Once you have moved a particular program to where you require it you could experience some problems run－ ning the program．This is sometimes caused by the pro－ gram not being able to find files which it needs to run．

A good example is the text files on the CoverDisk． These have been crunched using PowerPacker，so when you try to copy them to another disk and then try to read them you can＇t unless you have also copied the Powerpacker library into your LIBS drawer．


So if you have copied a program from the CoverDisk to your Work disk or hard drive make sure you also copy any other files the program requires，ie fonts，libraries， device drivers and Ccommands．

## De－archiving

Occasionally we have so many programs to fit onto the CoverDisk that we have to archive them．Archiving is where we take the entire contents of a disk and com－ press them into one file which is much smaller，giving us space to fit more programs onto the disk．

Dearchiving programs which are on the CoverDisk is a very simple task．If a program has been archived then you will need a blank disk to dearchive it onto．

Say we have archived a program called FRED．You simply double click on FRED＇s icon，and will be asked if you have a blank disk ready to dearchive to．Type＂$y$＂ or＂ n ＂accordingly．

Your computer will then copy the archived file into its memory and ask you to insert your blank disk．It will proceed to format the disk，and will then de－crunch the archived file onto your blank disk．

Once this has been done you can simply reboot your machine with the disk which contains the dearchived program on it and then use the program as instructed in the CoverDisk pages．

Note that if you have a Workbench 2 or upward machine you must boot with the CoverDisk write－ enabled to perform the dearchiving process．



## Workbench 3

If you have a Workbench 3 machine，don＇t worry－most if not all of the programs on the CoverDisk will work on your machines．
If the program is specifically designed to work with Workbench 3 then you may have to copy the program to your hard drive or Workbench disk using the process described earlier on this page．

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# Final Copy 2 £69.95 <br> Softwood Inc, Gordon Harwood, New Street, Alfreton DES 7BP Tel 077383678 

Like all true American products, the 256 true colour Final Copy 2 attempts to make itself bigger and better than the rest. Hailed by its makers as the ultimate word processor and desktop publishing combo, Softwood Inc have certainly pulled a flashy, fast and solid if flawed piece of software out of the metaphorical bag.

When booted in, the user is faced with a plethora of the usual options plus the DTP drawing tools for generating ovals, boxes, graphs and frames. The latter features are not offered by any other package here other than its predecessor and stablemate Pen Pal.
Also included is the PC-aspiring viewing option which is vital for any DTP software. Click on it and the user is presented with a list of zoom in and out ratios which enable real precision in text and picture placement.

Final Copy 2 will read any IFF file which can then be manipulated, resized and cropped at a fast rate to suit the user's tastes (a rotation facility would have been useful).
Add the bonus of an excellent 256 true colour palette that can be displayed onscreen at any one time and Softwood Inc's latest AGA supported offering sounds unbeatable.

Alas, the old adage "all that glitters is not gold" is appro-
 priate - FC2 is primarily a word processing package and while offering a healthy batch of WP features, there are a few omissions which leaves one wondering why they weren't included.

For starters, there is no show "invisibles" option which usually displays carriage returns, tabs and the like. Because of this, when text is converted into Ascii format, it'll be like walking up an 80 degree slope to clean up any formatting problems.

There is also no support for Adobe Type One and Agfa Compugraphic fonts. Back this up with no list or index generator as featured in Wordworth v2 and you've got a typical example of "great potential but must try harder".

Having said all this, when push comes to shove, Final Copy 2 is a good looking package with some powerful features to boot and provides the user with enough facilities to create an attractive business or
 home document.


A Thesourus is essential to any comprehensive wordprocesser

## Word

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nast

With all picture loading packages reviewed here, the text wrapping tends to break up words without inserting a hyphen. In this example, KindWords 3 shows off this particular inability admirably...

## KindWords 3 $£ 26.99$ <br> Activision, Sheraton House, Lower Road, chorleywood WD3 SLH

The second contender for the crown is KindWords 3 from the Disc Company. If you're familiar with Amiga word processors, you may well remember the hammering its parent KindWords 2 received due to its slow, bug-ridden performance.

When v3 popped up last year, it came as rather a surprise that the entire program had been rewritten by Digita International, the producers of Wordworth. As soon as it's booted in, you can see the striking similarity.

The wysiwyg (what you see is what you get) front end is practically identical but has fewer options than Wordworth. Icons run down the left-hand side of the screen and include the standard array of tab markers, text alignment, line spacing, undo, typeface, colour controls and palette.

The pull down menus at the top yield a spelling checker, thesaurus and editing facilities. IFF pictures with a maximum of 16 colours can be placed anywhere on the page and manipulated into the desired position but this is not a DTP program so don't expect too much control when compared with the likes of Final Copy 2.

One of the program's strongest points is the ease of use. While the manual may seem thin compared to the encyclopaedic bulk of the other titles reviewed here, KindWords3 features a help option which details each function.

On the negative side, for users of other packages such as Protext and ProWrite, documents cannot be loaded or saved from other sources, only in KW3 or Wordworth format - Ascii or IFF text. This coupled with the lack of PostScript support, custom printer drivers, differing viewing ratios - it's a real pain doing any kind of layout work when you can't see the full result of your efforts up on screen, and others makes KindWords 3 a non-contender for serious office use. However, it's one of the best in its price range.

Cynically, the package sometimes feels like nothing more than a cheap and cheerful version of Wordworth brought out to fill a gap in the low budget market but considering that it is half the price of its big brother, it does fulfil its goal admirably. It offers basic features with an easy to use, friendly interface and is suitable for beginners and home users alike.

# Adam Phillips acts as referee for the latest fight in the word processing wars. Find our which package is right for you 



Word processors were invented to do one thing - to put an end to that cumbersome piece of equipment, the typewriter. To banish typing errors, to manquish redoing an entire sheet because you change your mind about a sentence structure, to halt the tide of frustration at the lack of facilities and to shred once and for all the amount of manhandling the whole process takes.
In stepped computers to save the world from monotony and Ippex, to create a tool that would become more popular than its


#### Abstract

crippled little brother ever was. Whether you're a teacher typing a report or Stephen King keying in his latest epic, word processors have become part of many peoples lives. In the beginning Amiga word processing packages were ill in comparison to the monsters found on the PC but over the last year, we've seen a steady influx of software that is beginning to really show off the Amiga's word crunching capabilities.

Here is a pick of some of the best... let the fight commence.


## ProWrite 3.3 £54.95

Silica Systems, 1-4 The Mews, Hatherley Road, Sidcup Tel: 081-309 1111.

ProWrite 3.3 from New Horizon is the latest in the line of ${ }^{-}$pgrades which have been going on since the dawn of Amiga
but if you actually want to see it in all its technicolour glory up on the screen then forget it.
Another limitation is speed both in manipulating and especially loading times. When compared to Final Copy 2, ProWrite positively drags its heels when booting an image in.
These misgivings aside, it offers enough flexibility and versatility to be ideal for home use. With full PostScript support, the user being able to set different headers and footers for odd and even pages, the ability to customise the function keys through macro and a spelling checker that checks as you type, ProWrite v3.3 is well worth taking a look at - especially with the recent price slash. word processing. This version has been specifically designed to include AGA as well as offering tweaks, enhancements both aesthetically and practically and all-round improvements from the last outing.

This package has always been a poweful word processor and as well as having all the features you'd expect, it has thalities that most of the titles reviewed here can't offer.

Take the retain/apply option - if you have a format or style of text that you want used elsewhere in your document, it is possible to retain the set up of a parSicular block of text or word and simply apply it to another thus saving time and hassle.

Another excellent if ill-planned feature is the bookmark facility. If huge essays or lengthy reports are the order of the day, ProWrite is able to lay a bookmark in the text which by the click of a button can be recalled up on screen wherever you are in the document.

The main problem with this is only being able to use one per document - a system of numbered or named bookmarks as used in Wordworth would improve and fulfil the potential that this option has.

The packages biggest let-down is picture placement. While saying that it supports AGA and 256 colours on-screen, the actual net result is a rather messy dithered interpretation of the image; 256 colours and Ham8 may well be recognised by the computer

## GLOSSARY

Ascii................Acronym for American
Standard Code for Information Interchange. This translates into a code that can be transferred between different computers or between a computer and peripheral device.
boot ...................Another way to say start up.
carriage return..A non-printing Ascii character that causes printer or display to place the next character on the left margin; in other words to end a line of text and start a new one. Even though carriage returns are "invisible", they're deleted like normal characters.
font .................A complete alphabet of characters for one design. size and style.

HAM.............Acronym for Hold And Modify, used by the Amiga to display 4,096 colours at once, using only a fraction of the memory required by normal methods.
mailmerge.......An application that takes names and addresses from database and outs them into form letters.

PostScript........A page description language used to transfer information to printers and other devices

## Final Writer previeu $£ 129.95$ <br> Softwood Europe, 0773336781

From the same stable as Pen Pal and Final Copy 2, Final Writer is apparently, according to the manufacturers Softwood, the most comprehensive word processor with DTP capabilities to match ever produced on the Amiga.

You'll have to wait a while for our definitive review but judging from appearances and the bundle of information that flew our way, it certainly seems to be a package worth waiting for.

Like Final Copy 2, Final Writer has DTP facilities but also rotate text and graphics option to make documents look the real business. Couple this with a host of powerful features from cutting, copying and pasting graphics to structured EPS clip art images supplied with the package and Final Writer looks like it could well be a winner. Stay tuned for more details...

# Wordworth v2 <br> E129.99 <br> Digita International Ltd, Black Horse House, Exmouth Ex8 1J Tell: 0395 270273. 

Wordworth v 2 is a plush, solid and attractive word processor with an intelligent interface and a comprehensive well-designed manual.

This package is the most popular in the Amiga Computing offices due to its wide selection of facilities and clear layout. Digita International, the programmers, have always tried to incorporate easy on the eye displays and this is no different.

It features very basic DTP facilities such as the ability to place pictures and manipulate them, but has none of the drawing tools that its main rival Final Copy 2 boasts.

A page preview can be selected to see either facing pages, several or thumb nail size for multi page viewing. I wasn't convinced that the representations were particularly accurate and as with Pen Pal, graphics were certainly out of proportion on a full page preview.
Imported pictures range from not only AGA Ham8, 256 and colour IFFs but also include ProDraw clip art, Encapsulated PostScript and the PC Bitmap formats, PCX and BMP which none of the other packages can cater for.
Full colour AGA, HAM and IFF can be loaded through setting the screen preference in the Workbench which means those with hi-res monitors can word process in any resolution they want to.
The only drawback is that it still takes a long time to import large pictures and the program eats up memory

like Final Copy 2 never did.
On the word processing side, it has wysiwyg display and a large selection of features. The user is able to create indexes and lists. This is achieved through writing the text and highlighting the words that you wish to be stored in the list which are then transferred to be used later.
Among the literary options is the glossary. When chosen, the user is presented with a list of terms commonly used in letters, documents and the like. By clicking on one of them, it is placed on the page wherever the cursor is. This list can also be personalised and expanded to include your own fave catch phrase. Like ProWrite 3.3, Wordworth also features a bookmark facility but improves on it by giving the user the option to insert as many as they need in a single document by simply naming each one.
If full PostScript support, 17 superb Agfa fonts and drivers for 140 individual printers in a professional operating package sound appealing, then Wordworth $v 2$ is well worth taking a look at. Highly recommended.


Here's that poem in full plush wyshwyg courtesy of Wordworth

## Pen Pal <br> 836.95

Gordon Harwood, New Street, Alfreton DE5 7BH Tel: 0773836781

Of all the packages reviewed here, Pen Pal, from the makers of Final Copy 2, is the most user friendly and accessible of them all. It's ideally suited to for the absolute beginner wanting to create a reasonable document or database without becoming flustered and frustrated due to technical instructions or unwieldy operation. The actual


The excellent magnifying window on Pen Pal marred only by the disproportionate display...
package is split up into two different sections - a basic word processor and a database creator for producing detailed information storage sheets.

On loading, the user is presented with a well laid-out work top which includes DTP drawing tools. With these, as with FC2, you are able to construct boxes, horizontal and vertical lines but not ovals.

Other facilities include edit, file controls, mail merge, a large font selection and so on. As far as the typeface option operates, it works well but it is not possible to customise your own sizes. This is made worse by the maximum point size only being 48 when, for a good solid title, 65 is often needed.

Another excellent feature that hasn't been implemented as well as it could have been is the full-page view. When selected, the user is shown a view of the whole page plus a window for close up work.

By using the magnifying glass pointer, it's possible to select the part of a document you wish to see in more detail.

This all works fine apart from the fact that the full-page view is not what you'll see on paper and is actually stretched horizontally out of proportion.

This makes it very difficult to get a precise idea on exactly how the document looks without going through the hassle of printing it out and wasting paper.

Pen Pal does have some useful options such as locking up graphics so that the user doesn't accidentally move a finely positioned picture or set of images.

Form making is another well implemented facility. By creating the basic structure. for the invoice or whatever it may be, all the user has to do is simply fill in the details. The database creator is simple to use and as with the word processing section, is Asci-compatible. Through the generator, a database to suit your specific needs is created but for serious business use, this is not adequate.

With no special printer drivers or PostScript option, Pen Pal cannot really be seen as anything more than a good introduction title and a utility that can only really be used to any useful effect in the home.



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FEATURE

There's been a lot of furore in the Amiga press of late, talking about how the PAL version of the NewTek Video Toaster is here, and we don't have to wait any longer for broadcast video on the desktop.

While the Prime Image standards converter card which makes this so-called PAL Toaster possible is certainly A Solution, it's not The Solution.

Anyone with a full grasp of the facts will ignore the desperate ravings of Amiga users who trust a spec sheet more than the evidence of their own eyes.
OK, yes, the Video Toaster is the best peripheral ever produced for the Amiga, bar none. Why? Well, primarily because it got the Amiga sold to more non-Amiga users than anything else besides Scala, and it's the first Amiga application to become something of an industry standard for DTV.
But the main reason the Toaster is a cool piece of equipment is that it allows a user, in an NTSC environment at least, to cut and paste video about like a word processor or DTP program. Oh yes, of course provided you have a little bit of extra outboard gear.

The Video Toaster isn't just as good as one of its parts, it's a whole environment. Barking on about Lightwave all the time or talking only about Digital Video Effects is missing the point.

What pundits always fail to point out is that the unique success of the Video Toaster is based on its many entry levels. Some people buy it simply for still 3D pictures, some for video captioning, some for 24-bit frame grabbing and painting.

None of these entry level uses for the Toaster require much outboard equipment, just a Toaster and a VCR or two.


So near yet so NTSC, the Video Toaster remains a PAL dream

When you climb up a rung you need better VCRs, and time base correctors to enable you to do live video mixing and other more tricky things.

Obviously some equipment can be hired initially, but the fact remains that you need it. But the cost of this outlay is offset by the initial cheapness of the Toaster itself, even cheaper of course if you already have the Amiga 2000 or 4000 to plug it into, which is more probable than not.
In a PAL environment however, this situation changes beyond recognition. Instead of having to lay out for a single board, you have to add $£ 1,200$ each for a couple of standards converters, which makes casual purchase and use impossible.

This effectively doubles or triples the price to the consumer and ensures that


PAL and NTSC are so different that to convert betwen them costs many times as much as the Video Toaster itself, and the results are often far from satisfactory

## So you want a Video Toaster?

Well, here are the ways you can use a Video Toaster now and for real:

1. You can run one if you have a job with an American company who are prepared to ship you a bunch of NTSC video machines, monitors and cameras. You use the Toaster in a fully-NTSC environment and then edit and save your creations to tape. Then you use an STD CON to transfer your work to PAL tape, or simply send your tapes in NTSC to the US for consumption.

2You can use one if you have a lot of money to waste and don't really care about quality (nobody cares more about quality than someone with lots of money, I might add).

3If you want to use a Video Toaster like you can in the USA, then the only thing you can do is move to the USA. That is the only way you'll get max quality out for minimum money in.
even if all they wanted to do was render things up to the quality of Babylon 5 or SeaQuest DSV, they would be paying through the snout and then some for the privilege.

This means that the only people with enough dosh to lash out for a Toaster system would be the professional sector, and then quality would be the main issue.

Whereas the quality of the Toaster in an NTSC environment is easily good enough for broadcast, you wouldn't stand a chance of doing anything for broadcast in PAL.

For a start, any TV or production company wouldn't accept a programme on anything less than Betacam SP, a professional video format which is very expensive and requires outboard TBCs and the like to ensure the quality is good.

Unless you have the outboard gear there's no point in going to SP. Your average UK independent production company would only just about afford this kind of technology, let alone your average technoweenie with a camcorder.

## FRAMED

The only place you'll really get away with a home-made tape on UK TV is You've Been Framed, and using a Toaster with an STD CON that's what you'll get the quality of a home-made tape, not anything Desktop Broadcast Video.

The reason that the semi-pro video market in the UK isn't as well developed is that we don't have the wealth of cable stations they have in the US.

These are outfits who operate on Hi8, and where anything is permissible as long as the quality of the tapes you get is vaguely watchable. Not being rude to US TV, but NTSC is a lower quality video standard, having less lines and therefore less physical resolution than UK PAL. So content is king where quality lacks, as they say.

For the price, the Toaster is the best quality switcher you can buy, and gives you access to broadcast effects without all the expense of a full studio. That's the key, "without the expense".

Translate that into English, and you get the idea that although the Toaster is good
enough for the NTSC (Never Twice the Same Colour) standard, it's less thas acceptable (in professional terms) on 2 PAL system anyway, regardless of whet the Prime Image STD CON board can de to it.

There's been a lot of hot air generatel about the Prime Image STD CON card. isn't a transcoder, for a start, it's a stas dards converter. Although Prime Imag claim that it's a rock solid solution, ant that it's brand new, soon-to-be-patentei technology, it isn't going to be that good.

Why? Well, to be brutal if it was thr good all the TV and broadcast mag would be alive with talk of it. What stan dards converters do is difficult and processor intensive, and the technology to di it well is very expensive.

Even with very good standards cos verters you are going to lose quality - this is an inescapable fact. The images mar look just about the same, but in motioce they judder, they jerk, they flop about liwe dead fish.

When you pan, the smooth pan turned into a juddering mess. In short, the standards converter route is an absoluter crock of poo. Why?

Imagine you have a frame of video. It

a frame of PAL video so it is 625 lines $=$ height. You want to put it into an NTS device? Fine sir, we'll just trim 100 line off the thing and it'll cram in there a treat Obviously the lines are not all off the bortom, no you have to whip them out surs reptitiously from every other line or $s a$.

This is almost like de-interlacing $=$ Amiga hi-res image. Try it yourself. Pick a nicely detailed image in hi-res lace, prefe ably with text in it. Now use Art Dept Fr 2 to convert it into a plain hi-res picture Urgh.

OK, not only do you have less lines you also have more frames in NTSC 1 PAL you have a video signal which rame at 50 Hz , that's two fields per frame witit 25 frames per second and 625 lines.

In NTSC you have a signal which numb at 60 Hz , which at the same two fields pe frame you end up with 30 frames per se ond, and 525 lines.

So going from PAL to NTSC you les 100 lines and gain five frames. Going farm NTSC to PAL gains you 100 lines and loses five frames. Where do these gat and losses come from and go to?

In order to create a frame with 625 lmer from a frame with 525 you have to inter polate - that is, examine each line pixelt pixel and make a best guess about whard looks like spread over say five lines.

After that you have to lose these ent frames somewhere. In the old days ther used to do just that, lose a frame ever once in a while, but of course it's all a more subtle now, with the transitime
supplied with the Toaster 4000 system is a different board to previous revisions. Unless it's carefully tweaked and the little motherboard switches are precisely trimmed you can't get the machine to work, unless of course the signals it's getting are pure NTSC and nothing but. Double tricky.

This has prevented a lot of magazines from reviewing the VT as they don't have the kind of equipment or knowledge that 1 and my video chums have access to, which is why I have a Video Toaster myself

It's not useful for very many things, and I have to keep installing and deinstalling it when I want to use it because it takes up so much room on disk. The Video Toaster is something you have to be very serious about before you commit yourself to it.

Basically you're getting the gist by now that the PAL Video Toaster isn't quite with us, as much as we would like it to be. It is the coolest piece of hardware around, and it has a certain charisma which few other peripherals have, but it is a US only product and for the foreseeable future that is the way it will remain.


Subtle effects such as depth of field would suffer most in the conversion from PAL to NTSC



To cap it all off, Lightwave 3D is designed to render in set NTSC screen sizes...
this can be adjusted for using a limited camera size, but the exact PAL resolution can only be reached at by colculating a percentage and hoping Lightwave comes up with the right answer

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mocher little twist. The new Video Toaster
Enveen lost frames being blurred and mocthed. That's one way. In reverse you $=-10$ go from a 625 line image down to $\square 5$ line image, which means you have a mberpolate the other way.
Take a bunch of lines and figure out (in mil time) what they should look like if bey were only one line. And don't forget Ear's before you even think of moving $u n y$ of this stuff around using digital ideo effects.
And in the Video Toaster with STD CON you are doing this process both wars in real time. It's bad enough doing ths process one way and only after the aing stage, but both ways.

Add to all these other problems

It's a US peripheral and that's the way it'll stay

9

# myth 

lines in in NTSC 100 lines e a treat. the bot out sur

## NewTek Video Toaster user Phil South pops up with a few good reasons why the PAL Toaster is not here after all



If you want motion blur, Real 3D v2 is still your only good PAL bet

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MEMORY

New A1200 owners, or those who will be once the soot settles from Santa's exit up the chimney, could be forgiven for thinking that 2 Mb of RAM is enough for just about anything.

After all, this is four times what the original A500 sported, and still double the amount found in the A500 Plus or A600. Why add more?

To a certain extent, this is fair comment, as 2 Mb will suffice for any game you care to mention and a goodly number of more serious programs.

However, once a hard drive is added and the user boots from it then loads, say, a word processor using graphics in a document, the machine will slow down and eventually run out of memory.

Speed is affected because the 2 Mb RAM in a basic A1200 is all chip RAM, the area to which the custom chips have direct access, and for program code this is the worst place to be.

## TRAP DOOR

To avoid clashes with the memory accesses of Alice and Lisa, programs need fast RAM, and that's where the machine's trap door expansion slot comes in.

Like the older Amigas, the A1200 has a trap door on its underside which can be opened and used for peripherals without risk to the war-


As the Christmas shopping spree looms nearer, Stevie Kennedy examines the RAM expansions on offer

## RAM for

## Powner Computing PC1208

 of devices, which now include RAM/FPU boards, 68030 accelerators, and SCSI interfaces.By adding even as little as 1 Mb fast RAM, the A1200 can be allowed to breath easier and programs can be run outside the busy chip RAM area, freeing the Amiga to work smoother and faster, and this is the reason the A1200 RAM expansion market has taken off.

After a while, if fitting or using a hard drive, buying more powerful software, or moving into memory hungry areas of interest, the A1200 owner will be forced to expand, so let's take a look at those options.


## Blizzard 1200/4

The Blizzard board is the smallest around at the moment and benefits from a very compact design in which every chip save the FPU is surface mounted.

Eight 70 ns DRAMs provide the memory boost, and a further 4 Mb can be added by buying and clipping on the ADD4 module, which brings the board up to size with the others. A battery backed-up clock rounds of this neat little card with the neatest little rechargeable battery we've seen.

Maths co-processors, either 68881 or 68882 , can be added and the board is rated at up to 40 MHz , so with a possible 8 Mb RAM and the faster co-processors, there's a certain amount of upgradability, even though no SIMM slots are used.

The method of bunging an extra board on the end of the A1200/4 main PCB seems a little crude, and whether or not it will be as reliable as a SIMM socket is debatable. Keeping down the initial cost as it does, the method makes the Blizzard a good buy, though, and the extra 4 Mb RAM is cheap at $£ 159$.

more

## Microbotics MBX1200

The MBX1200 is a RAM and FPU combination much like the PC1208 in that it utilises a SIMM socket for flexibility, enabling users to buy the board in $1 \mathrm{Mb}, 2 \mathrm{Mb}, 4 \mathrm{Mb}$, or 8 Mb configurations.

A co-processor socket provides expansion capabilities using the 68882, and with chips rated at up to 50 MHz , A1200 owners with productivity in mind should find enough elbow room here.

Build quality, in common with all Microbotics products, is superb, and the solid ruggedness of the card gives one the impression that it could almost survive being driven over by a car.

Dark green PCBs, surface mounted components, and an air of solidity give the Microbotics products a quality feel matched only by the PC1208.


## A4000 options

Owners of the premier Amiga have probably the least choice of all, but this is amply compensated for by the simplest and most economic route to extra RAM. The A4000 motherboard can accept extra SIMMs up to a maximum of 16 Mb in its four fast RAM slots, and this should be enough for most users.

Over and above this total, those with heavy memory requirements - such as those driving a flatbed scanner, or indulging in a great deal of graphics work - have only one option at present.

American company DKB will shortly release their Zorro III RAM board, capable of holding 128 Mb of RAM using 16 Mb SIMMs, and though the fully-populated board will no doubt be extremely expensive, it is the only choice for those in the high end of the market who need a great deal of memory.

For pricing details and availability of the DKB board, phone Silica Systems on 081-309 1111.

## Chip us fast

The Amiga has two types of memory: chip RAM and fast RAM. The former was designed as an area of memory to which the custom chips, Denise and Agnus to start with, Lisa and Alice on the new machines, can read and write data directly.

For this reason, when chip RAM starts to run low, programs such as DPaint start to complain that they don't have enough memory to open a particular screen, and so on. The advent of the 2 Mb chip RAM Amigas, with twice as much memory for graphics and sound, was a blessing to all.

Unfortunately, chip RAM is not the ideal place for program code to reside, and there are two main reasons. First of all, the custom chips will run out of chip RAM a lot faster if it is cluttered up with programs, and secondly the programs themselves will not run as quickly.

Competition with the custom chips for access to RAM is bad enough for speed, but when the programs themselves rob Alice and Lisa of RAM, they slow themselves down as well, and we're caught in a catch-22. The only way out of this vicious circle is to add fast RAM.

This extra memory cannot be directly accessed by the custom chips and is organised such that programs run at their best speed. In effect, a bit of fast RAM is the simplest and cheapest accelerator money can buy

## Price hike

Earlier this summer, a duo of natural disasters conspired to nobble the RAM chip industry and boost prices well above the lows to which they had sunk early in 1993.

In Japan, a fire at one chip factory and an earthquake near another temporarily forced chip prices up and provided the excuse the industry needed to keep them there.

PC box-shifters, struggling on tiny margins, and manufacturers of all kinds can make more profit on more expensive RAM chips, so it is unlikely that prices will fall very quickly even after the immediate shortage. Competition will inevitably drive them down, but it might be summer 1994 before we see real price cuts.

For the moment, then, A1200 owners with need for fast RAM but no burning requirement as yet for huge wads of the stuff would be advised to buy one of the slightly more expensive boards which offer 1 Mb and 2 Mb options and wait until RAM prices come down again before investing in a 4Mb SIMM.

None of the simple RAM and FPU cards have two SIMM slots, but some of the 68030 accelerators do, and this makes life much easier.

For example, owners of the GVP A1230 might opt to buy the card with a 2Mb SIMM, then add another 2 Mb SIMM for a total of 4 Mb without having to throw away or sell the original SIMM.

Potential upgraders with single slot cards should bear in mind that the original SIMM will have to be sold, traded in, or discarded when bumping up the memory, so a word with the suppliers on whether or not a trade in option exists is essential.

## Microbotics MBX1200z

This is a later version of the MBX1200, offering exactly the same specifications with the addition of a battery backed-up clock


## Turbotech A41200



Another cheap 4 Mb card, the Turbotech is more or less identical to Power's PC1204 with the important omission of an FPU option.

Consisting of eight 70 ns ZIP chips and a battery backed-up clock, this is a no-nonsense card aimed at the home user with simple requirements for memory expansion and nothing else.

The Turbotech A41200 is built well, with the usual predominance of surface mounted components, and behaves well in use, so should render adequate service for the computer's lifetime.

As far as speeding up the Amiga is concerned, Turbotech's lack of a co-processor leaves it firmly anchored to the bottom of the market, but the addition of fast RAM will always give a machine regardless of extra chippery.


## Breath easy

Any Amiga working on a diet excle sively of chip RAM will suffer from : memory bottleneck which wil inevitably lead to a slow down in ope ation.

Without the fast RAM in which til run, programs will compete with graph ics and sound data for space, and the system will start to drag its feet.

With fast RAM added, everythiny becomes a great deal easier, and the program code has a space of its own iwhich to roam while the custom chip get on with the job of messing abou with the data in chip RAM.

This is a rather simplistic picture but the point is that chip RAM if designed to be used directly by the custom chips, and is where data suct as sound and graphics are stored, anc where screens are buffered or drawn is the background and so on.

To shove program code in with thit lot is asking for trouble, and that's wh most manufacturers claim that thei RAM expansions will give you anything from 100 per cent to 300 per cen speed boosts. In effect, the most obv ous change users will see is tha Workbench and other productivity packages run more smoothly. Gamer shouldn't be affected as most ary designed with unexpanded Amigas $i$ mind.

Even 1 Mb of fast RAM would make a big difference to the smooth running s an A1200, and 2 Mb should be enouy to allow paint packages and othe memory-hungry programs to run from hard drive without constantly runnigs out of chip RAM.

The norm seems to be 4 Mb thes days, but this can be expensive, ane users are advised to take a close loor at the expansion boards which have variety of configurations.

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$\star$ Kickstart™ 3.0 or above
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$\star$ Additional memory recommended.

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## Before you buy...

Before you rush out, cash in hand, there are a few basic points you should consider:

Is there are major difference between the various models on the market?
Although some appear faster than others during benchmark tests the actual speed difference is minute during normal operations.

## What size drive should I get?

Probably the best way to decide on a size is to add up all the software you'd like to install and then pick the next size up from that - under no circumstances consider anything less than a 40 Mb drive.

Do I need anything else?
Get a copy of HD-Backup or Quarterback Tools - which was given away with our December issue. In addition invest in some form of directory manager such as SID II or Directory Opus - good file management is an essential part of owning any hard disk.

## Which type of hard disk do I need?

In the case of an Amiga 1200 you'll require a 2.5 in IDE drive which has been approved for use with the machine.

If up until now your computing career has been spent on a floppybased system, the appeal of a hard disk may not be that great. After all what's the big deal, so they're faster and a bit more convenient than a floppy - hardly worth spending hundreds of pounds on, right?

Wrong, After just a few minutes exposure to a hard disk you'll grimace at the prospect of rebooting with a floppy. The difference is akin to that between walking and driving a car - with the relatively large investment being outweighed by vastly improved performance right across the board.

Before you start unscrewing your A1200 please bear in mind that if your machine is still within its warranty it will be invalidated by adding a hard disk under your own steam.

As a consequence, the following procedure is best attempted on machines which are over a year old. This isn't to say the process is difficult, in fact the A1200 is probably the easiest of all the Amiga range to upgrade.

However, if a Commodore engineer spots that a new machine has been opened for whatever reason you'll be out in the cold - end of story. Even if the problem has nothing to do the installation of the hard disk the end result will remain the same, and you'll be forced to pay for any subsequent repairs.

Now before wielding a screwdriver please read the following instructions very carefully and do not proceed unless you're completely sure of what you're

# fit an A1200 

doing. At this point it must be stressed Amiga Computing will not be held reasonable for any damage to you or your machine.

First disconnect everything from the machine, paying special attention to the power supply. Under circumstances attempt any maintenance while the machine is plugged in.

Now flip the machine over and undo the screws which hold the casing together, then slice open the warranty seals - there's no going back now.... Hold the machine together and carefully turn the machine right-side up.

You should now be able to remove the lid revealing the hard drive cradle within. You may notice that the top of the casing presses against the casing - this is normal and is done to keep the drive from sliding around inside the machine.

At this point go the kitchen, make a coffee and return to the table with; the coffee, a small crosshead screwdriver and one IDE drive - complete with connecting cable.

The coffee is to calm your nerves - feel free to increase the dose as necessary. Now please be careful and take your time to follow these instructions to the letter:


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## TUTORIAL

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## impress your friends by pretending to have more hard disks

 than you've got!apect. If the unthinkable happens and nour hard disk crashes, a partitioned drive will anly lose the data from one of its commenent partitions.

As a result you'll only need to for-mat/recover/re-install one section of the zive. In addition smaller partitions are and faster, so it's possible you could arice a slight reduction in access time Buwever it's pretty unlikely.

On the down side, heavily partitioned tives can be a real pain to maintain. In the early days lots of partitions can seem a great idea but when space starts to secome tight you could rue the day you went mad with partitioning software.

Suddenly even relatively small files won't fit onto the drive - even though there may be lots of space left when all the free partition space is added angether.

## AMAZING

A particularly painful mistake is to make DH0: - otherwise known as the system disk - too small. If this happens I's amazing how soon you'll face sequesters which read cannot copy fonts, Libraries or in fact anything else that sewly installed software has a habit of adding to DH0.
At this point there's no alternative but to start moving vital directories around you system, using the Assign command to bring order to the partitioning madsess you've created.

In short, don't be tempted to over partition and never make your system disk too small. On a 40 Mb drive make the DH 0 : partition at least 10 Mb .

Assuming the machine is firmly screwed together - complete with mouse, monitors and all other essential peripherals - it's time to reboot the machine using either the HDToolbox disk or the Amiga Computing December CoverDisk featuring RDPrep. Given the
choice opt for the RDPrep software give away as this is by far the simplest method of prepping a drive.

First boot the CoverDisk and run the

Step three: locate the hard drive cradle, take it out, and bolt the hard drive to it using the bolts which your dealer should have supplied. Remembier to treat the drive unit with care

RDPrep software - take a look at the disk pages and readme file if you're a bit nervous. The software will now automatically search for a standard Commodore SCSI device, at which point your new drive should be located and its name pop up.

Although both HDToolbox and RDPrep apparently think your new drive is a SCSI, in fact it's just pretending to be so, to make life simpler for itself and mildly confusing for you.
Anyway, leaving the idiosyncrasies of the installers aside the drive should be spotted and will appear in the RDPrep screen. Now simply select it and click
on the button marked Screen 2 Partitioning.

At this point define the size of your partitions and return to screen 1 . Now write the Rigid Disk Block and save a copy of the mountfile prior to quitting the package. Your new hard disk will appear on the Workbench screen as something like DH0:NDOS, DH1:NDOS and so on...

This simply means that the drive is on-line but as yet not formatted. To format the drive click once on its disk icon and select format from the pull-down menu.
The usual requester will now appear for naming the drive and selecting whether or not to have a Trashcan. Before clicking on format ensure that Fast File System is activated. Simply repeat this process for each partition on your system

At this point you'll be happy to know the process is almost complete - all that remains is to copy Workbench onto the drive.
To do this, reboot the machine using a copy of your original Workbench disk and copying all the necessary files to your system partition. To do this open a Shell window and type in the following line:
copy dfo:1? [drive nane:] all clone
Now simply repeat the process for each disk supplied with the machine and all will be installed. After you've done this for each disk make sure that df0: is empty and warm re-boot the machine. If all is well your machine will now bootup from the hard disk and you're in business. Have fun...


## 

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## GRAPEVINE ISSUE 16

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# revolution! 



## Interested in CD32 development? Well here's a great opportunity! First prize in our Christmas competition is a guided tour around the Psygnosis CD32 development centre in London

We'll take the lucky first prize winner to Psygnosis' plush Kings Cross offices, birthplace of CD32 Microcosm, for a super guided tour.

You'll see complex computer models on Silicon Graphics workstations, the original Microcosm on the Japanese FM Towns CD games system, and some of the exciting projects now under development. You'll meet Mike Simpson, Microcosm Project Manager and Stuart Sairgason, one of Britain's top programmers and the rest of the Microcosm team.

The ten runners up will all be able to sport some rather fashionable and exclusive Microcosm T-shirts.

Psygnosis' new game, Microcosm, featuring 256 colours, has some of the most awesome graphics and stunning video sequences to hit the small screen. The story begins amid

corporate war and sabotage when a miniaturised brainmanipulation droid is implanted in the President of the Cybertech corporation. Unfortunately for him it all goes horribly wrong. The story follows the droid's progress in a world unlike any other, involving exploration of six areas of the President's body.

Any of these prizes could be yours. All you need to do is complete the entry form and pop it in the post.


## STAKING YOUR CLAIM

Send this form to:Microcosm Compo, Amiga Computing Europa House,
Adlington Park, Macclesfield, SK10 4NP.
Answer these simple questions:

1. How many colours are there in Microcosm?
a. $151 \square$
b. $184 \square$
c. $256 \square$
2. What is implanted in Cybertech's president?
a. A miniature psycho-botic implant $\square$
b. A miniaturised brain-manipulation droid
writing to our offices. No cash alternative to the prize is available. The editor's decision is tinal. No correspondence will be entered into.
c. A miniature brainless manoeuvrable probe $\square$
3. How many areas of the body are there to explore in Microcosm?
a. Three $\square$
b. Five $\square$
c. Six $\square$

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This letter is probably a bit more unusual than the others you receive. I would like to wam people out there that computing can wreck lives.
I've been married for three and a half years to a wonderful lady, and we have two great kids. My addiction to programming and games playing has helped me to lose all that.
Although the time spent on my computer went quickly for me , it dragged for my wife and the computer got all the attention. Now I must sell it and I hate the sight of it. I have lost all the things in life that I love. I'm hoping you will print this because I know there are many people out there who are on their way to losing loved ones in the same way.
it, because of this letter, people can recognise their addiction before it's too late, Then my marriage may have had some purpose. Thanks for listening.

Richard Dean, Slough
An addictive or compulsive attitude to computers is more common than many would like 10 believe, and, as your moving account shows, the problem isn't restricted to school-kids.

Pilot tests in schools have shown an almost 50 per cent addiction rate among those who play games regularly, so the danger of the problem becoming more acute cannot ge understated.

Im sure all our readers, particularly those with partners, will feel for you, as (if they're being honest) most will have suffered domestic strife of some sort caused by the urge 10 spend hours in front of a keyboard every evening. How many of these cases have resulted in such heartache is anyone's guess.

If any of our readers can be as open and courageous as you in sharing this problem with others, we'll be glad to give the matter a full airing through the ESP pages.

## Not so big bang

I disagree with some of the points made in the article "CD Big Bang" in the November issue.

Firstly you say you look forward to the time when games will no longer have "cheap looking tiny sprites", but massive digitised action sequences. I do not see this as in any way a step forward.

The fantastic artwork we see on some games now could be lost as artists are pushed out by anybody with a video recorder and a digitiser. This type of animation is currently used heavily in tedious and dull beat-em-ups.

If digitising from video to game becomes the norm, does this mean we will never see a game which isn't first a film? Most of the classic games have nothing to do with film tie-ins (Populous, Civilisations, Chaos Engine, and so on).

Secondly, you say the advent of CD means that we can look forward to the game being bundled with film previews, tie-ins, 0898 competitions, special offers, and so on. Personally, I would be more than peeved to buy a CD to find out that

599 Mb is used for advertising and only 1 Mb for the game.

You may see this as far-fetched, but in these days of corporate take-overs is it ridiculous to one day see a Psygnosis CD game accompanied by loads of Sony advertising?

Adverts could be tacked on to the front of a game so you were forced to watch them. Where will it all end?
"Congratulations, you have just finished level one. And now, a word from our sponsors..."

Jeez! This is the stuff nightmares are made of. With some games aimed at younger audiences, the marketing bandwagon will see an opportunity to target these young minds with constant advertisements for the latest $£ 100$ trainers or whatever.

I do look forward to the advent of CD video, but what is the use of 74 minutes? Two episodes of Blackadder? Half a feature film? Of course a film could be provided on two CDs, but there would no doubt be a two CD price tag of $£ 20$ or

on Sea
Your concerns are those shared by thousands of game-playing Amiga owners, but they will probably remain unfounded. The vast spaces available on CD-ROM discs offer artists more flexibility, not less.

For example, the Sony corporation recently bought more than 100 Silicon Graphics workstations which, we believe, will be used to produce original 3D rendered cartoons and intro scenes for games.

Mamy of the larger software houses, Ocean included, have followed suit, and the result of this huge increase in graphics throughput and the benefits of the CD medium will be even more stunning intros of the type for which Psygnosis are already famous.

If anything, this explosion in the amount of space available to artists will result in more leeway for graphical excellence rather than less. Check out the intro to the latest CD32 release of James Pond if you don't believe me.

As for advertisements which we are forced to watch through, can you imagine any company being so stupid as to force an unvilling audience to sit through three minutes of advertising?

We are already familiar with game intro screens proudly touting the name of the sup-
pliers, and ten minutes of trailers on most rented videos, yet we don't complain about those and don't have to watch them if we don't want to.
The most probable outcome is that videostyle ads will appear on CD32 discs for games to be released, but even so, most game players will welcome a chance to see the game in action rather than trust to a magazine review.

How many of us fast forward through the pre-movie trailers on a rented video until we spot a film we are interested in, then stop and play that particular trailer?

Your concerns about vast digitised games are shared by many, but we won't see games in this format for a while, and the games companies will never attempt to sell something which proves unpopular in any case.

Digitised sequences will be used as intros or cut scenes and are unlikely to appear as part of the interactive gameplay. Quite apart from anything else, digitised human action will lay a game open to the film classification regulations.

Again, worries that $600 \mathrm{M}^{\prime} b$ of $C D$ space will be taken up mostly by ads and such are likely to remain just worries. No matter how much graphical nonsense surrounds a game, the software houses know that a bad game, no matter how well packaged, is a waste of

## Game fix

In issue 63, J Farrar complained about Microprose B17 and Virgin's Shuttle not working on his GVP A530. I too experienced problems in running those programs from my A530.

The solution to this crisis was as simple as it was effective. Programs like these overrun the Amiga's operating system but seem unable to allocate the memory they need to run.

What I found out was that I should let the Amiga set aside the memory by stacking the program to at least 50 per cent more than the program size.

As an example, using icon information from Workbench shows that 817 is 320,000 bytes in size. Change the stack size from the default 4,096 to 480,000 bytes, save the setting, and that's it!

Jon Hemfjell, Maze, Norway
Thanks, Jon. All tips aimed at helping readers with specific problems are gratefully received. All you sim buffs out there with accelerators and problems with your games now have another trick to try when getting them to run.

Of course, if the games companies programmed their games properly in the first place, we wouldn't have to print bug fixes, would we?
$>$
resources. What is more likely is that good games will be further enhanced by the addition of cinematographic cut scenes, intros, outros, and so on.

If you think this prospect is a bud one, then you are a traditional gamer with a capital $T$ and in a very small minority.

## Wrong end of the stick

I'm afraid you have vastly overrated the CD32. AGA makes no sense in a games machine today.
I was quite horrified to see Oscar running on it. All enemy objects stuttered along at 25 frames per second. This is not on! They were tiny! How is CD32 going to cope with large beat-em-up characters? It can't compete with SNES or the Mega Drive if it can't move better quality images at the same rate -50 Hz

AGA is a compromise, retaining bitplanes for backward compatibility, vital for a computer but not for a console. It needs new software! This was an opportunity to introduce a true step forward by switching to byte-per-pixel graphics.
This is the most elegant and efficient way of doing graphics. You get a big increase in flexibility once the units dealt with by processor and RAM are equated to the abstractions of graphics algorithms.
Forget endless bit-masking and shifting. This helps image processing, art packages, colour DTP, real time 3D game environments, and 2D sprite drawing.
CD32 has this planar chip, but it doesn't use DMA. Conversion will still take an entire video frame of precious processor time, so don't expect to see 3 D at high frame rates. I doubt it will match the speed of Mega CD's 3D hardware sprites as demonstrated in Thunderhawk.
The Amiga is supposedly a graphics machine, but it has a slow bitmap, and this is why it is dying. When will this be rectified with true DMA-to-video read-out? Can Commodore survive long enough,


This month's club is the North Wales Computer Club, who celebrate their birthday soon at a third annual open day to be held at the YMCA, Queens Drive, Colwyn Bay on November 13. Attractions will include trade stands, software demonstrations, and hardware displays.

In a rare and much needed display of computing for the less fortunate, a Special Needs User Group stand will be offering help on how this area of computing can be aided.

Further details are available from Bob Lang on 0492530594.

and aren't Amiga games now committed to the idea of running screen conversions? No name supplied
Answer number one: The Amiga is not dying. It is still the best selling home computer in Britain. End of false rumour.

Answer number two: How many misconceptions about the games industry can one cram into a single letter? True, the PC and consoles have certain advantages over the Amiga, but have you really looked at the games scene over the past year?

A healthy games industry is one in which good programmers can be found releasing games based upon original ideas, improving existing games, or just selling bucket-londs.

Diggers, Flashback, Hired Guns, and Syndicate, all of which originated on the Amiga, are ample testament to an industry which still has a large audience, lots of ideas, and plenty of development left in

Consoles can be discounted. They are a fine form of entertainment, but the only games available for them betray their incredible dependence on the very young games play-
ing population, and the games available are of a very uniform caste.

As for your assertion that the Amiga cannot offer beat-'em-ups to rival the Mega Drive, can $I$ just mention Body Blows and invite you to compare it to Street Fighter 2?

Keep an eye on Body Blows 2 , soon to appear as a special version for the CD32, then tell me how slow Amiga games are. You slag off Oscar for its "slow" 25 frames per second movement, but by comparing this to 50 Hz , a screen refresh speed rather than a pixel movement speed, you confuse the issue.

Oscar is as smooth, if not smoother than, the majority of console games, costs less, and uses more colours on screen. As this is the first platform game of its kind on CD32 format, we can only expect the genre to improve rapidly.

You also seem far too willing to put down CD32's ability to convert and use byte-perpixel graphics and use them in a smooth game-playing environment.

The software houses who actually make
rather than talk about the games we play have universally welcomed the planar chip, and until we see a game which utilises this sort of PC-to-Amiga graphics conversion, it would be churlish and over-cynical to doubt its potential.

Yes, in today's game-playing world, the Amiga's bitplane graphics have certain historical disadvantages, but had Commodore released a mactine with absolutely no compatibility with existing software, we would have received thousands of letters of complaint.

Far better, don't you agree, to offer the best of both worlds by retaining compatibility yet making it easier to software houses to use PC graphics?

Finally, to hold up MegaCD as a standand by which any games machine can be judged is ludicrous. MegaCD has been slated by the most important people in the games industry, the buying public, who have taken one good took and leff it well alone.
With its dated 16-bit graphics, high price tag, lousy sound, and two year old game scenarios, MegaCD is about as likely to survive as a badly wounded turkey in a Butch Cassidystyle shoot-out on Christmas Eve.

It would be silly to predict that CD32 is going to sell a million units in its first year, but by the same token it would be foolish and cynical to deny Commodore's exciting new machine a few months to prove itself.

## Light fingers

It's not very often I resort to your pages,

## Got

## something to say

through the pages of $A C$ ? Ezra Surf is our mailman, dedicated to reading your letters and selecting the most interesting for publication. Drop him a line at:
Ezra Surf's Postbag, Amiga Computing Adlington Park, Macclesfield SK10 4NP
Please don't enclose saes as Ezra just hasn't got enough paper to reply personally. He might also have to shorten your letters, so don't be offended if you end up getting the chop but I feel I must protest in this case. We are all familiar with software piracy and other types of computer crime, but every month when I pop down to my newsagent 1 see another type of crime being committed.
I am talking about the stealing of magazine CoverDisks. How many times have you seen your favourite magazine on the shelf without a
disk? This type of behaviour is simply not acceptable in a community where people have enough problems à la piracy.

Not only does this crime put potential readers off from buying the magazine, but it also gives the shop owner a good reason for not stocking it. I have now placed an order at my newsagent to save me galavanting around town looking for a copy.

Finally, can you reprint the address you gave for a supplier of Bengali fonts a while back?

Abdul, Hailsham
We're as annoyed as you are that people pilfer CoverDisks from magazines while they're on the shelf, but there's not much we can do about it.

The only solution would be to shrink-wrap the whole magazine with the disk in the middle, but as this would stop readers from carrying out the essential Saturday morning browse

Extra drives
Having just purchased a second drive for my trusty A500, I was alarmed to find that one of my best games, Zool, did not support it!

I feel that hard drive support is an optional bonus, since hard drives are relatively new to the Amiga as standard, but many users have had extra drives since way back.

Companies should support at least extra floppy drives! Come on, people, let's get with the program.

John Gibbs, Yanbu, Saudi Arabit
We are in complete agreement. Since about 1989, AC has considered its average reader to be someone with an A 500 , probably expanded to 1 Mb . with an extra floppy drive.

Lately, with the resurgence in hard drive popularity and 2Mb Amigas, that theoretical average equipment level has risen, but a games company releasing a game in 1993 which doesn't recognise a three year-old standard is doing us no favours.

## it is a step we do not want to take.

If you get your local newsagent to stock the magazine, you can guarantee it will be either below or behind the counter where prospective thieves can't reach it. Big high street newsagents are great for range of choice and convenience, but it is this sort of store which is most prone to disk-nickers.

The company we quoted as a supplier of Bengali fonts has since gone very quiet and we no longer know if it is still in business, so here's an Ezra plea: can someone please let us know of a reliable supplier of scalable ethnic typefaces? There's an expectant market out there!

## Pet hate

I hate hard drives, or at least the unstable variety.

Three days ago, I was near the end of a 50,000 word story when my hard drive, after two years of faithful service, popped its clogs, shuffled off this mortal coil, and generally expired.

Repeated attempts at resuscitation through the good offices of DiskSalv retrieved some files and data, but the majority were lost and after six hours of armed struggle I was forced to raise the white flag and format the bastard.

All I have left of my 50,000 words are a few pages of print out (barely 5,000 words' worth), and an early file of the first chapter.

As I said, I curse all hard drives to the ninth circle of hell and back. OK, so I should have backed the damn thing up, but last time I did that using Quarterback 4.0, the eighth floppy in a series of over thirty developed a read/write error, thus rendering the backup useless.

## Aaaaaargh!

Mr Excruciatingly Angry. Bournemouth


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For children 6 to 16 years Covering many areas from Attainmen
Target 3 of the National Curriculum, the 10 we of 10 Maths (Algebra) package is packed with subjects, levels and activities to challenge all children from Kay Stage 1 right up to Key Stage 4. Following sequences, interpreting graphs, solving equations and numerous other algebraic skills have never before been so much fun. This is the fun way to practise and bacome fast and proficient with the manipulations needed or high examination marks.


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## Junior Essentials ${ }^{\text {x }}$

For children 5 to 11 years A truly flexible package covering man opics essential for building a good educational foundation. The areas a team of experts and come from several subjects and levels of the National Curriculum.
The child's progress in these areas is constantly monitored and recorde and parents or teachers can easily discover where a child needs help. As with all the 10 out of 10 series, further motivation to play the games and leam more is added In the form of High Score Tables.


## Early Essentials

For children under 7 years
Outstanding. All of the activities are not only very enjoyable but they're well thought through. It's one of the best multipurpose infant packages I've seen in a long while. If you have young kids get it for the home. If you're a teacher, hammer on the headteacher's door and beg for money to buy a cop
 itmammaminememens close to Early Essentials."
Micro Computer Mart (Sept. 93)


French ${ }^{\text {² }}$

## For children 6 to 16 years This sulte of six educational games wil give fun and motivation to all chidren learning French. The package is designed with the Modern Languages National Curriculum firmly in mind and contains many challenges to reinforce facts stated in Attainment Targets 3 and 4. <br> 10 out of 10 French is essential for chidren on Key stages 3 and 4 , but the numerous parent and teacher customisation options make the software suitable for all children the French language.

## Dinosaurs

## For all ages

This package is the fun way to leam the truth about dinosaurs. The six games all have superb digitised graphics to make a whole area of history - dinosaurs - come alive. If you came face to face with a tyrannosaurus would you run away? Or are you safe because if's a vegetarian and wouldnt eat you? This, together with 100 s of other interesting facts, can be discovered from this enthralling package. The six games - all with single and mult-player options - are educational fun for everyone


## English



## Driving Test ${ }^{\text {T}}$

## For all drivers and learners

Whether you're a novice learner or an advanced expert, there's plenty you can leam from this package. There are thousands of buili-in questions and you can choose whether you want to answer them directly or add to the fun by trying hem within games. The six games have been designed to be fun for all adults and include strategy, mental agility, coordination and more. And, if you think you are up to it, you can "take the test" - a the Drving Test.


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## V频

 0742780370 / 769950For the occasional high quality graphics project, it makes sense to send your creations to a - bureau (such as Alternative Image $=440041$ ) for output onto 35 mm tenpuracies.
Ehtirtunately, although by far the best nuitey method, it's also the most costly, -ccilly for limited numbers - and worse EL te turn-around can often be up to a nomb
In the past the only alternative was to Iftra 24 -pin printer or a deskjet capable a eliour output. Unfortunately although Efire graphs, charts and colour text, such Pues invariably fall short when it comes theto-realism.
What was required for the hordes of teige artists was a dedicated high quality mephis printer, and with the arrival of the - Fargo Primera, the long wait is finally mer
Cansidering the quality of the Primera's
G
 os

ssy

Primera's output is good enough for presentation portraits
and glossy colour print-outs from Amiga packages and glossy colour print-outs from Amiga packages
watput, the printer itself is unbelievably mall. To give you an idea, close the mag, ture it on a table and add maybe an inch at-round and you're there.

Allow a little space for twin feed and Peer trays and you've got not only one of te most compact but arguably the most ieractive - not to mention powerful pinters on the market.
As for the set-up, life couldn't be much smpler with a standard RS232 cable to the k miga, a power supply, the cartridge and zuper trays - all done in a couple of minutes.

Although easy to install, the ink car=idge is certainly unusual consisting of atat appear to be twin kitchen rolls, linked Ir a continuous wax-based ink ribbon.
Although this sounds a potentially nesy system, the printer employs a heat zanser method which means the ribbon is try to the touch. Even stranger than dry mis is the application of colour - which in many ways is more akin to scanning than sormal printing. In order to produce full

colour image the Primera will make up to four passes over the specially treated A4 thermal transfer paper or transparency film.

In order to achieve this the four colours cyan, magenta, yellow and black - are laid line-astern wrapping around the source roller connecting as a constant sheet to the take-up roller.

## SPOOLS

To load the printer you simply place the source and take-up spools into position on the removable cartridge, which then drops directly into a large bay area which dominates the middle of the printer.

For those planning to alternate between colour and mono ribbons Fargo will supply a spare cartridge, so swapping formats will simply mean popping the

## Consumables rundown

| OMY colour ribbon providing 115 prints | $¢ 45$ |
| :---: | :---: |
| CMYK colour ribbon providing 80 prints | $¢ 45$ |
| Mono ribbon providing 400 prints | 640 |
| Fhper: per 200 sheets | 615 |
| Transparency: per 50 sheets | 635 |
| Photo-realistic upgrade kit | ¢249 |
| Thity-print CMY colour nibbon plus 25 sheets thermal and the sheets of transparency film come as part of the package. |  | lid, removing and replacing with the spare.

Assuming your paper is loaded and the printer is powered and on-line, you're ready to print. As for the two examples, ADPro/TruePrint 24 was used for the portrait while Final Copy provided the spoof proof of Miss Pfieffer.

However it must be stressed neither of the two packages are essen-

## Prepare to drool as Paul Austin provides an exclusive look at the latest in colour printing technology

tial, as any program capable of using preferences can take advantage of the Primera thanks to a custom driver which comes as part of the package.

Although compressing an image from A4 to the size you see invariably improves the overall look, the full scale output is easily the best colour hard copy yet available for the Amiga.

The question is: How much are you willing to invest to enjoy the glossy output it provides? First there's the cost of the printer itself, add the ribbons and of course the special paper or transparency film and the Primera falls squarely into the pro market.

At present the Primera is limited to 203dpi with its existing Amiga driver. However a photo-realistic kit is already available for the Mac and PC which quite literally does as its name suggests.

Unfortunately the Amiga driver is still in development, but rest assured as soon as the Amiga version arrives it will be thoroughly tested in Amiga Update.

As you may have noticed, I'm very impressed by the Primera. The output is
excellent and reasonably quick at around two minutes a page, and the registration of the component colours is again excellent. My only concern is that this could degrade with prolonged use.

In short, for those who don't actually make money from their artistic exploits the Primera is just a tad too expensive. Having said that, if you can envisage recouping your investment in the form of T-shirts, projector slides or framed 24 -bits, the Primera is the latest "must have" dream machine for any Amiga artisan.

> Product: Primera colour printer Supplier: Power Computing Phone: 0234843388 Price: $£ 1,051.62$

> Implementation: 10 Easy of use: 10 Value for money: 7. Overall: 9

MGRAPHICS

I$t$ seems that everywhere you turn thes edays a new low cost 24 -bit card is popping out of the hot little oven of graphics development. As professional users demand a better true 24 -bit display from their machines and find that AGA does not meet all their needs, a succession of manufacturers have attempted to fill the gap with cheap cards that do just about anything.
Piccolo is the latest to boast retargetable graphics (RTG), Workbench emulation, and a bundled paint package, but this time there's a bit more to the act. Among other things, Piccolo offers its own on-board blitter, and the software supplied free with the package is superb.
Sitting on a Zorro card, Piccolo will automatically sense whether it is in a Zorro II (A1500/2000) or Zorro III (A3000/4000) slot and change its mode of operation accordingly, so it is compatible with any of the larger Amigas and works well with all of them. In what is fast becoming a standard display technique, video signals are fed from the Amiga to the board, then passed on to the monitor.

This method allows for a simple passthrough when the board is not being used and makes possible a pain-free single monitor set-up. In addition, though, it has the much more pleasing result of making the board transparent to the user, and after only half an hour one could be forgiven for forgetting there was a card in there at all.

Software is supplied on four disks and includes a wealth of high quality material. The EGS libraries and utilities form the main system software and enable Piccolo to function, and two paint packages top off the bill. Installation is painless, and the novice should find little to worry about.

My only concern here is with the EGS libraries. These are crucial to the operation of any board which uses them for RTG or intuition support, and having encountered them several times over the past couple of months, I've been less than impressed on occasion with their reliabil-

ity. Viona Development bug-fix and upgrade the libraries constantly, and the latest release is much more stable than the first software we saw at $A C$, but there are still problems. On installation, EGS refused to function on the A1500, but when Piccolo and its software were transferred to the A4000 everything worked fine.

## PROMISING

Inconsistencies of this kind are a bane and exactly the sort of thing to kill a piece of hardware or software before it has a chance to develop. If this happened to EGS it would be a great pity, because EGS not only promises compatibility across a number of graphics cards, but a smooth and pleasurable working environment.


ECS provides a default work environment and a few hacks

## The Piccolo 24-bit graphics card offers good hardware and a great software collection, as Stevie Kennedy found out

Apart from the initial hiccup with the A1500, Piccolo's software was stable during most of the test with the exception of Workbench emulation, which will have to be worked on. Many programs refused to work under EGS, and some even caused a crash.

In particular, the retargeting utility found problems with packages which open more than one screen at the same time under different resolutions.

ADPro and ImageFX were prime offenders, the former bombing out when a preview screen such as Crop Visual was opened, the latter flipping out at startup.

Piccolo loaders and savers are available for both these packages, so the problem can be circumvented, and there are libraries for use with Real3D and Imagemaster.

However, EGS still doesn't have Workbench emulation good enough to match that offered by Retina or Picasso, and the retargeting utility does not offer control over refresh modes.

Although a last ditch method to coax unco-operative programs into life on an RTG card, editing the way the board displays each program individually is the only way to sort out glitches such as those which afflict Imagine when running under both Picasso and Piccolo.

Both cards will redirect Imagine to the 24 -bit display where things move along a little faster and smoother, but when moving an object on-screen, a trail of orange
lines is left behind or a wave of corrup tion makes it difficult to see what's goin on in detail. The program is still usabte and redrawing the screen using Amign-? forces a refresh to get rid of the corrup tion, but it comes back with every subs

## TV star

The second paint program bundla with Piccolo is the EGS version $\quad$ TVPaint ir, a tried and tested pack: with a name for reliability and pons The junior version is not so much ? cut down TVPaint as an older versiz? without the advanced features for in TVPaint 2.

Most surprising of all, considerts that this is supposed to be a budror bundled version, is that the alt channel works perfectly. This is on of TVPaint's most useful and pois ful features, and provides a $256-\mathrm{le}$ linear keying process between tre images using a greyscale mask.

Using the alpha channel, imas can be made to fade in and er gradually as the transparency of tit mask changes with the greyser used, and entire spare pages can th turned into an alpha channa for superb image compositity results.

Most of the original TV Paint's tr

## -ripeation.

livine, who's software and emulation - more stable than any at the $=$ doesn't have this problem, and titer RTG cards could take a lesson or mim its willingness to give users the -o edit individual screens.
0 -pite reservations about the current If ECS, which should improve as the -res are updated, when it works it is a mase. Viona Development are com--g a new release of the libraries as I - ind boards distributed from now on could have the improved software. leting illustrates better the potential of $\square \leq \Delta$ an the bundled paint package, "elainter.
Burning from a Workbench icon and peaing on the Piccolo's display, Painter

## A winning package which sh ould grab a chunk of the

 24-bit market

## 24-BIT IMAGES

With a 2 Mb Piccolo, this means that full size 24 -bit images can be opened in their own windows, as many as the user likes, and brushes cut and pasted between them. In addition, the package would appear to make full use of Piccolo's blitter, as screen update is very fast for a $24-$ bit package and all movement and dragging operations work in full colour.
When, say, the palette requester is onscreen and is dragged to another position, it doesn't change into a highlighted box, but instead is dragged smoothly and with no fuss around the screen.
Brushes are likewise smooth and easy to use, and can be stored in a preview box at the bottom of the tool box until needed.


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objects

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mate colourful
on the command at the cursor position - and another click takes you to a thoroughly documented working example featuring that command.


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## Liberator attack

I recently bought a couple of disks from a PD library and was dismayed to find not only that tan order arrive short by a disk or two, but Tare two of the floppies had the Liberator inss on them.
The version I received appears to be a tew one, and performs the following - Sesirable operations on a hard drive instem:

Disables Virus Checker, including v6.30. 2 Writes a small file called .fastdir to the toct directory.
1 Copies itself to the C: directory as Pvr not PVI as stated by some Virus Checker tics).
4. Inserts a line in the startup-sequence that reads "br Pvr".
5 Writes itself to any writeable bootblock tisk inserted in the machine.
4. From time to time it alters every protecIon bit on every file on a floppy, not necassarily a bootable one, apparently Alosen at random, so that only the archive St is set. In other words, you can't edit, apy, or delete any files until you've gone Trough the hassle of setting the protect ats straight.
7. It launches small background programs shich appear to do nothing but slowly eat memory and slow down applications by asing up processor time. I first noticed this when PageStream started to run slower and slower for no apparent reason.
3. If you run a program which examines The tasks in operation and their processor usage, Liberator instantly switches all asks off, thus preventing you from seeing what is going on.
9. Liberator can be destroyed by booting trom a write-protected floppy containing Trus Checker 6.30 and using the Link/File scan option on your hard drive. Having Virus Checker 6.30 running in the hard drive startup-sequence will not protect jou.

Christopher Light, St Leonard's-on-Sea

FSorry to hear you're having such a nightmare with this virus. As you say, Virus Checker 6.30 will do the business on the little scumbag, but BootX v5.32 and over is just as good.

Liberator is a menace which has popped up in various guises, and one which we had to fight off a couple of months ago in the AC offices when it sneaked onto a hard drive right under the nose of Virus Checker 6.29.

This latest Liberator is a perfect illustration of how quickly a virus killer can become obsolete in the face of new viruses, and underlines the need for all responsible owners to register their virus killer programs with the author.
Regular updates are your reward for a small shareware donation, and given that a nasty strain of something might otherwise ruin data and programs on a massive scale, the price is a very small one lo pay.

# From viruses to thunderstorms, we've got answers to all your problems, natural or otherwise, from our team of experts 



## Robot builder

$\sigma$I have been trying for a while now to hook an old robot arm to my Amiga 600 and so far have failed. I bought it as a toy/education tool for my son about five years ago and it's been in a cupboard ever since.

Now I reckon I can hook it up to my Amiga, like the robot arm you reviewed a while ago, but though I know a bit about Amos, I'm not sure how to go about addressing the serial port, or what extra hardware I need to get the thing to listen to me. Can you help?

Peter Withington, Walsall

FYour best bet, unless you are a fairly advanced programmer, is to contact Switchsoft, a company specialising in hardware projects such as controlling lights and so on from the Amiga.

They can be reached on 0325345773 and should be able to supply you with the relevant switching boxes and a few hints and tips on sending Amiga signals via these boxes to external devices such as your redundant robot arm.

## Go forth

$\sigma$I've been programming in Basic for a few years now, and would like to use it to create a suite of simple analysis programs to help me with my postgraduate work. Not being a programmer, I've heard that Forth is good for this sort of work, but I've never seen an Amiga version of it and have no real information on it.

If you could point me in the right direction as regards a copy of Forth, or at least tell me if it's worth my while bothering with it, I'd be grateful.

W McFadden, Bristol

$\square$extra floppy won't work. Have I damaged my Amiga? only result in no result - try again. Is dead, using the pin out diagrams at the rear of the Amiga manual. nised repairer who can.

Alternatively, you can contact Helios Software in this country on 0623552828.

As for the language's suitability, its use of stacks and reverse Polish notation make it the fastest high level language for maths calculations, so it may well be the best choice for your analytical work.

## Mard hatting

$\sigma$Having lost data on two occasions due to hard drive failures, I'm beginning to lose faith in them. The first was a mystery which I put down to vibration damage, though how it happened I don't know, and the second was caused by a power spike during a recent thunder storm.

I had been playing Gunship 2000 when there was a flash, the lights went off, and my Amiga ground to a halt. As the thunder roared outside, I re-set the trip at my main fuse box and turned the machine back on with a nonchalant air. I mean, I had a trip switch and two fuses between the Amiga and the mains, so what could go wrong?

Imagine my despair when the drive reported checksum errors, then read/write errors! What happened and how can I prevent this sort of disaster ever happening again?

A Luszjar, Birmingham

FYou must be one of the most unlucky people around. Power spikes of this sort are rare, even during thunderstorms, and for it to harm your Amiga is even rarer.

It seems more likely that the hard drive was robbed of power as it was writing data, but as you were playing a game at the time, this may not be the case.

Power surge protectors can be used to cut out the possibility of power surge damage, and are useful in areas where the power supply isn't up to its usual reliable standards. PSPs are in effect just very large capacitors which will soak up the surge and release it in a controlled fashion, and they work fine.

You probably don't need one, and the odds of this sort of thing happening to you again must be very remote, but for peace of mind you could try scanning the ads in a PC magazine, where PSPS can normally be found for sale.

## Special agent

 I think I may have blown it big style. I have a digitiser which fits to the floppy port to draw power, and the cable recently got a little bit frayed. To fix it. I cut the end off and reattached it, but it looks like I did it wrong.There was no bang or puff of smoke, but ever since trying the digtiser again I find my
G Bates, Peterborough
You may have fried a CIA chip, the custom chips which control inputtoutput to the ports on the rear of your Amiga, but this is quite difficult to do. Digitisers won't send power back through the port. so a badly wired cable should really

If a short circuil has bown the chip, you can check with a multimeter to see if the port
This won't tell you much. so the best course of action would be to have your machine checked by a local dealer. It they can't fix it on the premises, they should know a recog-

$\sigma$

## Blow out

Three days ago, my A500 blew up. No, really, it blew up. I was sitting playing a game when a loud pop was followed by a cloud of smoke from the top of the machine, and the Amiga went totally dead. There was also a cloud of sort of fluffy stuff not unlike loft insulation.

Having no money, I asked a friend who repairs TVs to take a look and he reckons it's a blown capacitor. There's a single component with its top blown off near the floppy drive and if he can get the correct replacement he says he can fix my beloved Amiga.

Is there any danger, do you think, that by fixing this capacitor we will simply leave the machine open to the same thing happening again? Could another more vital component be damaged if 1 just go on replacing the capacitor instead of finding the source of the fault?

A Fraser, Aberdeen

FWhen a capacitor blows, it can go through old age or because it was subjected to current and voltages outside its rated maximums. If the former, a simple replacement job is fine, but if the latter there could be a much more serious fault which needs correcting urgently.

Try replacing the capacitor at first, but if there is any repetition, take the machine to a repair shop at once.

## ECS blues

$\Gamma$Owning an A500 with Workbench 1.3 is becoming a bit of a bind, and I've been considering moving up a notch. However, as the A600 is a turkey and the A500 Plus is difficult to find these days, I've been looking at ROM switchers.

I've heard that some of them don't work as well as they should and that

## ACAS

> You got problems too? Then drop a line to Amiga Computing Advice Service, Europa House, Adlington Park, Macclesfield SK10 4NP and we'll move heaven and earth to help in these columns. But sorry, we cannot reply personally, so save those SAEs.
some programs don't work with some switchers. Is this true? I'd buy an A1200, but as AGA seems to me to be a stop-gap before the AAA chip set is released next year, I don't want to be stuck with another obsolete machine.

Will I be able to use Productivity mode when I get a Kickstart 2.04 ROM? Warren Tide, Newton-le-Willows

$\Gamma$I don't know of any problems with ROM switchers and incompatibility. As the name suggests, a ROM switcher is more or less a completely mechanical device and shouldn't have an effect on the Amiga other than to change Kickstart ROMs. This will, of course, cause certain compatibility problems in itself, but the ROM chip rather than the switcher will be the root of this.

We don't share your sentiments about AGA. It is no more a stop gap than this
year's Ford models are a stop gap between the 1992 range and the 1994 range. If the A1200 was the last Amiga development we were going to see for a couple of years, it would be very bad news indeed, because continual development is the only way a machine can survive in today's fast moving world.

As for Productivity mode, you'll need both Kickstart 2.04 and the Super Denise chip to make use of this and other ECS screen modes.

## Dumb card



A friend of mine has a PC laptop which utilises the same smart cards as the A1200, and he has a 64 k battery backed up SRAM card and a standard 1 Mb card.

Both work perfectly and both enhance the way the laptop works, yet when I try them on my A1200 they're not nearly as

## Pricey monitor puzzle

$\sigma$If, as most reviews say, the 1942 monitor is a bi-sync and will display all AGA screen modes, why don't Commodore retail it as a cheap replacement for the 1084 ? It uses the same case and sound circuitry, so why is it so expensive?

Fair enough, it has a better tube, but a lower price would result in much higher sales (they must have sold thousands of 1084s), thus keeping cash flow healthy if nothing else.

When a company is in the sort of financial hole Commodore have dug for themselves, surely it makes sense to cut prices and sell aggressively in bulk?

On a more technical note, how do I work out from my screen resolution the frequency needed to display it?

Adam Cuthbertson, London

F
Commodore's reasons for the marketing decisions they take are never easy to work out, but the reason for the 1942's relatively high price point is given in your
question. The 1940 has a dot pitch of about .39, the same as the medium resolution 1084, though it is capable of screen modes the 1084 would not handle. The 1942 monitor, however, has a much better dot pitch of .28, similar to SVGA monitors, and thus has a much better quality, and more expensive, CRT. Easy answer, eh?

Calculating vertical frequencies is a simple matter of multiplying the number of lines the scanning beam must draw by the number of times it must do this per second. Using a 50 Hz refresh rate, the calculation comes to:

$$
\text { number of lines } \times 50=\text { vertical frequency }
$$

So, for example, the maximum vertical overscan size of a hi-res no flicker screen is 550 lines. This multiplies by 50 Hz to give the vertical frequency of 27.5 kHz . Your monitor would have to be capable of accepting signals of this frequency before it would display this mode.

## Serial printer

.
I have the opportunity tr buy a cheap old printer for next to nothing, but I doer know what make it is. The casing th unbadged, though the printer ribber looks very similar to standard Epsor types, and the only clues to its unt are a set of DIP switches and a serial interface with a six-pin cable connection.

I think it was used in a counct office churning out listings, so should at least have a fast draft pritr rate, but can you tell me if there il any way of connecting it to $\begin{aligned} & \text { an }\end{aligned}$ Amiga?

L Crichton, Clevelan

4The connections for the printer's serial cable shoulk be easy enough to suss out What you have is probably an olt Mannesman or Epson printer, som of which used a six-pin serial nterface.

Lightwave, a company specialising in cables of all sorts, stock a six-pir to standard 25-pin D-plug cable whict will allow you to connect the printe to the Amiga's serial port. Phont them on 051-630 5003, ask for par number MCL-532, and you should be on your way.

Just make sure that there is mo gender clash between the cable anc the ports (adaptors are available :this is the case), and use an Epson or Mannesman Tally printer driver. You might not get top class results, ber the printer should serve well enoust for listings, letters, and so on.
good. Rather than making the machine run smoother because it has more memory, it seems if anything to go slower and I was very disappointed. Why the A1200 so bad at using smart cards?

B Morrison, Wellinghar

FThe A1200 is fine at handlind smart cards, it's just that the cards themselves are pretty stupid.

PCMCLA cards are 16 -bit and they tail to the Amiga across an 8 -bit data bus. The means that as far as memory goes they art slower than the chips built into the $A 50$ never mind proper 32-bit RAM connect to the A1200 trapdoor.

Any A1200 program running in the fass RAM provided by a smart card will ras slower and less smoothly than if the carz was removed, so forget about PCMCIA memory purposes.

If the cards worked well with you friend's PC laptop, I would hazard a gues that the laptop was a 286 clone, and therr fore based on the same 16-bit technology a the RAM cards.



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## Introcluction

0ne could be forgiven at this time of year for thinking that Britain was a nation of shoppers rather than，as Napoleon claimed，shopkeepers．
At the height of the seasonal buying binge，millions of pounds rush from pocket to cash register every hour， advertisements become ever more shrill and demanding as the big 25th approaches，and tensions rise as we fight for bargains to eak out that thin－ ning budget．
New owners this year，most of whom will be enjoying the delights of the A1200，have more choice than ever before in terms of software and hardware，and as last month＇s Software Encyclopaedia should have answered most of your questions on the software front，we＇ll now concentrate on the latter．
Banging a new hard drive or 4 Mb of fast RAM in a machine is a sure ticket to more computing pleasure，but

As Santa heaves into sight on the horizon and thousands of shoppers descend on Britain＇s retail centres，Amiga Computing tries to put things in perspective for the new Amiga owner struggling to survive the Christmas perind with wallet and sanity intact
the choice is a bewildering one．Add to this the huge range of printers，floppy drives， and accelerators and the deci－ sion on what to buy begins to assume nightmare proportions．

Within this short supple－ ment，we＇ve tried to cram as much information as we can on the essential low－cost extras every A1200 owner will want to make his or her own．Printers， hard drives，and the rest of the gang are covered，and you＇ll find RAM expansions dealt with by the round－up in the main magazine．
There should therefore be enough to guide most first time peripheral purchases，but for more in－depth reviews and the latest on what has been released for your machine，don＇t forget to read Amiga Computing every month．


## If you've just bought a new machine, an extra floppy is an absolute must!

Aside from a mouse, the most important add-on to any new system has to be an external floppy. With this in mind, $A C$ brings you the best selection of external floppies money can buy.

## Raclite

If speed and style is what you're looking for from a floppy the Rocite is the drive of your dreams. The unit itself is by far the smallest, slimmest and fastest drive we had on test. At roughly twice the speed of the standard Commodore internal it's pretty impressive - and barely makes a sound in the process.

Unlike some of the opposition, the Roclite comes with both anti-click and anti-virus which when combined with its pure elegance and speed make it a very attractive buy.

If you're looking for a stylish slimline drive that can outpace the opposition but that still retails at a very respectable price, Roclite is the answer.

```
Price Watch: Roclite, £59, Gordon Harwood, 0773836781
```


## Cumana

Cumana drives have been around as long the Amiga and to their credit l'd be surprised is the very first unit out of the factory isn't still going strong.

Sturdy, reliable, boring, noisy, that's the Cumana - in fact we're talking the computing equivalent of the Volkswagen Beetle.

If you're not after the whistles and bells of more modern drives but simply want an external that will last longer than you will, the Cumana is the perfect choice.

Price Watch: Cumana, $£ 49.95$,
Cumana Limited, 0483503121

## Pawer PCBBDB

Now here's a drive that's fit to burst with additional features. Aside from working as a standard floppy the unit also boasts an anti-virus mode which immediately write protects all the your floppies by completely disabling the write-to option.

The next feature is a slightly dubious addition which takes the form of a software/hardware copying system entitled Blitz copy. As you might have guessed this isn't meant for normal AmigaDOS copying tasks and that's about as far as we should go with this particular line of thought.

Although rather long the drive still remains surprisingly thin considering the amount of hardware stuffed inside the anti-click, Blitz plus the standard drive mechanism. As

## lexible friends

an all-purpose drive, the PC8808 has to be one of the best buys on the market especially when its obvious flexibility is combined with a reasonable asking price. Available in both black and vanilla.

Price Watch: PC880B with Blitz, £60,
Power Computing, 0234843388

## Zydec

If you're repelled by the designer label look, the Zydec offering provides the minimalist styling and space conscious design that any environmental friendly Amiga user would happily swap his or her 2CV for.

Although small and amazingly quiet considering the lack of any anti-click hardware, the Zydec does have a few faults in comparison to its more bulky and featurepacked counterparts.

Because of the extremely slim design, Zydec have been forced to add vents on the top and to the rear of the drive. Although this may seem a perfectly acceptable design, a coffee spill could soon change your mind.

If you're looking for a basic but efficient drive the Zydec is fine, but considering the extra features on many of the opposition I must admit it wouldn't be my first choice unless desk space was extremely tight.
in one amazingly small case. Like Power's single dre both units offer anti-click, anti-virus and Blitz copy.

The drives themselves are totally independent as tar as the Amiga is concerned and like all the disks in the round-up, through ports and on/oft switches ar provided. Unlike all the other drives in the round-up te Dual Drive also boasts a separate power supply -z extremely useful addition if your machine is alreas heavily laden with additional hardware.

It's worth stressing that the anti-virus option does ntr actually check for a viral presence. Both the single art dual drives simply disable the machine's ability to wre information to disk.

If you're in the market for a twin external system, te Dual Drive offers a compact, economical and featurepacked answer that avoids the power problems oter encountered on heavily expanded systems.

Price Watch: Power Dual Drive, $£ 125$,
Power Computing, 0234843388

## Pawer XL Drive

Last but not least comes the pinnacle of external and internal engineering, namely the Power XL higt density drive. Once installed along with a small patt program, the XL allows any Amiga to share the 1.76 Mb storage available only to the A 4000 .
In addition to high density use the drive can also reat standard 880k disks automatically. Better stil ti will also read and write PC disks whethe they are high, $(1.44 \mathrm{Mb})$ or standart (720k) double density.
Although rather pricey when initial) released, the drive has had a dramate price cut and now ships for $£ 99.95$ for the external version while the external variant is yours for $£ 10$ less.
As $A C$ goes to print only the $\mathrm{A} 1500 / 2000$ version df the internal drive is available but by the time you reat this article Power have promised the entire Amiga range will be supported.

Thankfully the new internal version doesn't requirt any soldering and simply operates as an internal add-or or replacement for your original drive.
If you take your computing seriously and regulaty need to transport large files 24 -bits or whatever, the XL $=$ a real bargain.

Price watch: Power XL. Drive, £99.95,
Power Computing, 0234843388

As the name suggests, our first offering from Power Computing is a twin drive comprising two PC880B drives

## Power Dual Drive

rice watch: Zydec, $£ 51.50$,
Hobbyte, 0727856005

Read on as the latest in A120ロ hucket
seats and furry
dice are put to the test
or anyone with a new Amiga and a need for speed the following page should provide some essential reading and invaluable investment advice
Before the round-up begins, it's worth outlining if, when, and why, you should consider upgrading your nactine. For general applications such as word process79 gameplay and basic artwork there's no real need to syrade the basic A1200 - after all it's already five times leter than a standard A500/600.

However if your computing exploits are moving towards ay tracing, DTP or multimedia acceleration can often be Essential.

Almost all the accelerator/FPU cards on the market ane with space for RAM. As a result I'd strongly suggest a ninimum of 2 Mb should be at the top of your shopping list.

The reason is that faster processors and FPUs ncrease system speed - or at least that's the plan. nowever, if your CPU is forced to wait around for free SAM, any speed increase can soon be sacrificed.

It possible always add 32 -bit trapdoor RAM in prefertince to PCMCIA cards. Any RAM fitted to a trapdoor apansion has two major advantages, firstly it has direct 3-bit access to the CPU/FPU, and secondly 32 -bit RAM s coviously much faster and better suited to the machines achitecture than the 16 -bit RAM of a PCMCIA.

Number crunching
As for adding an FPU or math co-processor the real zestion is application. If you're a would-be ray tracer an FPU is a must, to a lesser extent the same is true for DTP and paint packages - in short anything that depends neavily on serious number crunching.

On the subject of speed, 030s are only at their best in zambination with a 68882 FPU as they boast an improved instruction set aimed directly at 030 accelerators. It on the other hand you're planning to stick with your eristing 020 , the difference between a 6888/1 or 2 isn't so significant.

The only other element affecting a CPU buying decision is whether to go for an Embedded controller or EC chip as opposed to the more expensive 030 with its builtin MMU or memory management unit.

In speed terms there's no real difference between the two, however a CPU with an MMU can take advantage of vitual memory - a process by which an area of a hard disk is set-up as a virtual memory space with the assislance of additional software - thereby avoiding the need for massive RAM expansion.


M1230XA

New from Microbotics, the M1230XA range offers both the cheaper EC 68030's alongside standard 030s with built-in MMUs - both of which can employ optional 6888/1 or two FPUs. The various designs range from 40 to 50 MHz with RAM configuration ranging from 0 to 8 Mb . To add the finishing touch a battery backed-up clock has been thrown in for good measure.

In keeping with the Microbotics tradition for quality engineering, the boards use mostly surface mounted components and display a general build quality which make them hard to beat.

Price Watch: M1230XA, $£ 177.17$ to $£ 711.99$ Indie Direct, 0543419999

MBX1200z
As the name suggests, the MBX1200z is yet another product from Microbotics range, but this time expansion is strictly limited to RAM and the addition of an FPU. Unlike its cousin, the MBX range starts with 68881 FPUs running at 14 MHz with either 0,4 or 8 Mb or RAM.

Alternatively you can opt for the 68882 running between 25 and 50 MHz with identical 0,4 and 8 Mb RAM configurations. As you'd expect the same Microbotics build quality is inherent throughout the range and like the XA series each card comes complete with a clock.

However l'd certainly question the wisdom of investing in a 4 Mb 14 MHz 68881 when you could buy a 4 Mb 25 MHz 68882 for only $£ 50$ extra. In short, steer clear of the 14 MHz variants, they're simply not worth the money.

Price Watch: MBX 1200z, $£ 109.99$ to $£ 169.99$, Indie Direct, 0543419999

A1230 Turbn+
The Turbo+ has the honour of being the very first A1200 accelerator and as the name suggests, it brought the first 030 to the A1200. Unfortunately the CPU is still only available in an EC form with a maximum of 40 MHz for both the CPU and optional 68882 FPU . Like the other boards it ships
in various RAM and FPU configurations but alas it does work out slightly more expensive than the majority of the opposition; although this is balanced by the ability to expand up to 32 Mb as opposed to the 8 Mb limit on most boards.

Price Watch: A1230 Turbot, $£ 249$ to $£ 499$ FPU with 4Mb RAM, Silica Systems, 081-309 1111

PC1204 \& PC1208

Not to be outdone by the likes of Microbotics and GVP, Power Computing have joined the fray with their very own range of RAM and FPU expansion boards. In an attempt to cater for all tastes the new duet can be expanded to 4 and 8 Mb respectively with either 68881/2 FPUs - which like the Microbotics boards can be rated up to 50 MHz .

Again like the opposition a battery back-up clock comes as standard but in a break from tradition all models in the PC1204 range are shipped with 4 Mb on-board as standard - only when it comes to the FPU and MHz are you required to make a choice.

Like the Microbotics boards, the build spec is very impressive with most major components surface mounted. Given the choice it's difficult to pick a winner, as a result I'll leave the decision making to you...

Price Watch: PC1204 \& PC1208, £105 to $£ 619$ Power Computing, 0234843388

Blizzard 12DD
Although the Blizzard is yet to appear in the office it's still worth a mention. Like the GVP board it comes with an optional $68881 / 2 \mathrm{FPU}$ rated up to 40 MHz .

Like the smaller Power board, 4 Mb of RAM come as standard with additional space for another 4 Mb if required. As it has not been tested in-house it's impossible to offer an opinion but at $£ 369.95$ for an 8 Mb board with 33 MHz FPU it's well worth a closer look.

Price Watch: Blizzard, $£ 169.95$ to $£ 369.95$ Gordon Harwood, 0773836781

## Tell Our Art Department To Work Weekends



You have a deadline coming up, and the pressure is really on. So relax. Go on a picnic. Art Department Professional (ADPro) is working the weekend.

ADPro's comprehensive ARexx interface allows you to convert formats, animate, image process, grab video, record on film and more, even while you're not there.

Being able to work straight through the weekend (as well as the other 120 hours in the week) means that projects can be doné on time,

which otherwise couldn't be done at all.

Every aspect of ADPro, including its advanced image processing features, ability to read and write many image file formats, and control different types of color input and output devices, can be accessed from easy-to-write ARexx programs.

Get Art Department Professional.
It works weekends, so you don't have to.

[^3]GC

# Monitors 

TVs are great cheap display units, but the time comes when all owners start to feel the eye strain


Plugging an Amiga into a telly for the first time can be a great kick. Up pops a large colourful screen, with bags of sound and plenty of room for those sprites to run unurd in, and for pure games playing, the TV is hard to $\square$ When it comes to serious work though the good ze aly is almost useless.
There are three general choices for those in search of u nonitor. First, there's the reliable and very popular sesum resolution duo of Commodore's 1084ST and Yiligs CM8833 Mk2.
Secondly, the range of FST television/monitors being act by our advertisers, and finally the new, more expenmee but higher quality Commodore 1940/1942 range.

## Old faithfuls

Te medium resolution 1084ST and CM8833 Mk2 moniIvs are the mainstay of the non-TV Amiga display world, and have rendered excellent service over the years.
Both monitors offer sharp displays at the usual $640 x$ 56 Workbench resolutions, and with their stereo sound
are ideal for games, music and video applications.
When used for a hi-res interlace mode though, these old battle horses show their weaknesses. They are incapable of accepting the much higher frequency output of a flicker fixer, and are forced to use the flickery PAL interlaced screen. Ideal for general productivity, but not recommended for hi-res work.
The CM8833 Mk2 has recently been discontinued, so bargains should be available of you look carefully.

> Price watch: 1084S, $£ 179$, Gordon Harwood (0773 836781)

## Telly compromise

There are many flat square tube (FST) televisions around with much clearer displays than the average TV, and they usually suffice for word processing and so on.
Despite the claims of the suppliers, FST tellies do not match up to true medium resolution monitors for sharpness, but they do offer certain other advantages.

For roughly the same price as a monitor, you get a
remote controlled TV, often with teletext, and the speakers on a TV are usually better.

```
Price watch: Goldstar TV/Monitor, £169.99
    1st Choice Computers (0532 319444)
```


## High quality

The new Commodore 1940/42 monitor is the best allround choice for A1200/4000 owners, because it can handle all AGA screen modes and has stereo sound into the bargain.

Accepting both the PAL lower frequency signals and the Productivity screen modes most useful for word processing and other serious work, the 1942 offers a clear, crisp display and is the ideal choice. Its cheaper cousin, the 1940, supports the same frequencies, but has a lower resolution screen.

Price watch: 1942 monitor, $£ 369$ Indie Direct (0543 419999)

## Hard drives

$T$hough most new A1200 owners with hard drive aspirations are advised to buy a machine with a pre-fitted unit, many thousands buy a basic A1200 and look to .pgrade it at a later date when the budget allows. For tese people the hard drive road can be a rocky and gainful one.
Internal hard drives can only be fitted by opening the nachine and invalidating the one-year on-site warranty. In addition, though physically fitting the drive is a matter of five minutes with a screwdriver, prepping and formatting it can be a nightmare.
Depending on the supplier, the drive will either be Jessed or cursed with a disk full of formatting software which can be excellent, such as 1st Computer Centre's srep disk, or appalling, as is too often the case.

The RDPrep program given away on last month's CoverDisk is a good solid answer to the formatting probem, but do try to go in with your eyes open.
Most internal IDE drives are built by four or five companies, and all perform much the same in terms of access and data transfer benchmarks. However, a new

## When it can

## transform your A120ロ

## totally, you would be

 barking mad not to consider a hard drivedrive from Quantum threatens to set new standards and start a speed war. The Rocket claims a seek speed of only 5 ms and a maximum transfer rate of 4 Mb per second, and should be reviewed in a forthcoming issue.

## Price watch: Quantum 85 Mb Rocket drive, $£ 190$ <br> Siren Software (061-724 7572)

Other options include the trapdoor SCSI-RAM board from GVP and a number of external drives fitting through
the PCMCIA card slot. Both have the advantage of not endangering the official warranty.

SCSI-RAM fits in the same way as a RAM board, but has SCSI interface built in and a cable running to the blanking plate at the rear of the Amiga. A 25 -pin SCSI port is then available to any external SCSI device.

## A4000 HDs

Owners of the more expandable Amiga have had little more choice than their A1200 brethren over the past year, with Commodore's long-awaited A4091 SCSI-2 interface lagging far behind its parent machine in the release schedules.

Finally admitting defeat, Commodore have licensed the design of the board to a third-party, and the A4091 can at last be expected on the shelves before Christmas. Using such an interface, A4000 owners can add any SCSI device, including extra (and faster) hard drives, optical drives, professional scanners, and lots more.
you
wanna play
we've got it.


## EIEESSENTIAL SOFTMNRE <br> A soft touch

Af you are the proud new owner，or potential new owner，of an A1200 or A4000 this Christmas，you＇d be mad not to look first and foremost at software designed to make the most of your machine and its superb graphics．In other words，if a package doesn＇t support AGA screen modes，then in the words of some old＇ 60 s has－beens，let it be．

Over the 14 months or so since the release of Commodore＇s latest machines，many productivity pack－ ages，and a growing number of games，have moved over to AGA and now support it entirely．
Using these programs is the only way to make the most of your investment by forcing the Amiga＇s 256 colour and Ham8 graphics to the limit，and if you don＇t buy the AGA sotware you might as well not have bought an AGA Amiga．

## DTP packages

## Page5etter 3

Long established as the Amiga＇s best budget DTP program，PageSetter 3 offers a lot of punch for your pennies．With its full AGA on－screen support，solid DTP features，and the hot－linked graphics and text editors，PS3 is superb value for money．
Not suited to full－blown professional output，PS3 is ideal for all home，club，and enthusiast uses．

Price watch：PageSetter 3，$£ 42.99$
1st Computer Centre（0532 319444）

## Buying your first Amiga software

 package can be a real trauma，but there are some obvious candidates for
## A120ロ and A40ロロ

## users

## ProPage 4

In the absence of the soon to be released PageStream 3， ProPage 4 is the only choice for high end AGA DTP．This powerful package is capable of superb professional results in full colour，and has the same hot－linked graphics and text editors as PageSetter．

Good typographical control allied to versatile layout tools and the Genie macro system makes ProPage a real contender，but it does suffer from a very non－standard user interface and is less flexible than PageStream．

Price watch：ProPage $4, £ 119.49$
Hobbyte（0727 856005）

## Final Writer

A top quality word processor with lots of DTP features， Final Writer is more a publisher than either a WP or DTP


Final Writer promises exciting features
program．Text rotation，graphics cropping，and column mode combined with advanced WP features make this brand new package a winner．
From the same producers as Final Copy II，Final Writer is fast，slick，and well finished．

Price watch：Final Writer，$£ 129.99$
Gordon Harwood（0773 836781）

## Paint packagat

## Brilliance

This huge package comes in two versions，both supplied as standard．Brilliance itself is a Ham8 painting program and Brilliance Register is designed for 256 colour artwork the idea being that splitting the functions leaves each program to get on with its own speciality as effectively as

## Mard Proceqcorct

## Wardworth 2

This heavyweight contender is a full wysiwyg program offering full on－screen support for 256 colour graphics，and will display Ham8 IFFs in 256 colours as well．In addition， Wordworth has a host of powerful word processing features such as automatic list generation，bookmarks，and so on．Disadvantages are that it can be slow，and in particular is snail－like when a document includes graphics．

Price watch：Wordworth 2，$£ 129$ Digita International（0395 270273）


## Final Copy II

Easily the best handler of AGA graphics，FCII is a slick，DTP－like word processor with very fast graphics import，scaling，and repositioning．The program also has a smooth user interface and is very easy to use．
On the down side，FCII falls short of many other WPs in terms of pure text－ handling features，and is not really suited to creating large，multiple page documents

Price watch：Final Copy II，$£ 99.95$
Gordon Harwood（0773 836781）

## ProWrite 3.3

A good general purpose word processor，ProWrite offers decent text handling and AGA graphics support，faliing somewhere between Wordworth and FCII for speed in that department．

This is a program which doesn＇t excel in any particular area，but makes a good showing in most．At its present asking price，it＇s a bargain．

Silica Systems（081－309 1111）

## ｜n tha pipalin＝－ッ

Developments in the AGA field were slow to start with，but have picked up tranatically during 1993．All new productivity software supports AGA as randard，and most of the more popular packages have gradually been carverted．The next 12 months now promise a number of mouth－watering istances．
First up will be the latest versions of two Amiga heavyweights，PageStream 3.0 and Imagine 3.0 ．The former was recently previewed at the World of Amiga show in Fasadena，California，and has prompted a buzz of excitement．
Using what has been described as the most Amiga－legal interface ever，PageStream 3.0 offers not only complete AGA support，but a range of
advanced typographical and layout tools to rival anything presently available on the Macintosh or PC．The provisional release date is towards the middle of December and the package is likely to be expensive，but it will certainly be the best Amiga DTP package to date．

Imagine 3．0，like PageStream，has both taken AGA on－board and added many new features．The user＇s scene will now render directly as a Ham8 or 256 colour graphic，either in final or preview mode，and all screen resolutions are supported．

New features include field rendering for smoother animations，skeletal objects， better font support，and about 200 others．A review will be appearing in Amiga Computing as soon as Imagine 3.0 is released，so keep those eyes peeled．


Brilliance．．． high price and performance to match
zossible．The package as a whole offers much aster AGA painting than any of its rivals，superior unimation features，and many powerful graphics zocessing facilities．Even at its highish price tag， Srliance is far and away the best Amiga paint program in Isdass．

Price watch：Brilliance，£149
1st Computer Centre（0532 319444）

## DPaint IV AGA

Though recently knocked from its throne by Brilliance， DPaint IV is still an excellent painting and animation tool to AGA Amiga owners．All Amiga screen modes and sslour combinations are catered for，and the Move squester is still one of the easiest to use animation tools around．

Unfortunately，it is dreadfully slow in Ham8 mode，even in the A4000，and has seen little real development since
release III．Good at the price，but better save up for Briliance．

Price watch：DPaint IV AGA，$£ 89.99$ Micro－PACE UK（0753 551888）

## Personal Paint 2.1

Not as well known as it deserves to be，the latest version of Cloanto＇s paint package is a cheap and effective 256－ colour register program which does not use Ham8，but will load these graphics in and convert them to 256 colours．

Painting tools are much the same as the other pack－ ages，with the possible exception of the program＇s use of spline curves，and there are several image processing functions which can be used to give a picture a special touch．Not the most powerful package，PPaint is nonethe－ less excellent value for money．

Price watch：Personal Paint 2．1，£49．99
Micro－Pace UK（0753 551888）


## Rendering packarpes

## Scenery Animator 4

A traditional landscape generator，Scenery Animator has been around for years，and now does a very good job of producing 3D Ham8 countryside．

Aside from the usual trees，clouds，and lakes，Animator 4 also allows the user to locate VideoScape 3D objects directly in a scene，and to place trees individually for finishing touches．Easier to use，if less powerful than Vista Pro，Scenery Animator 4 is an excellent beginner＇s program．

Price watch：Scenery Animator $4, £ 79.95$
Meridian（081－543 3500）

## Vista Pro 3

This virtual landscaper has more options and controls than Scenery Animator 4，and presents the user with an exhaustive（and rather daunting）control panel，but doesn＇t offer more in the way of solid features． Vista Pro is，however，more flexible for those wishing to put in the effort．

The MakePath utility，which is used to create paths for fly－throughs，can put together some very complex flight sequences，and should give animators enough to be getting on with．

Price watch：Vista Pro 3，$£ 54.95$
Gordon Harwood（0773 836781）

## Real 30 ve

Real $3 \mathrm{D} \sqrt{ } 2$ is a complex nightmare of a package with a cumbersome user interface，but it is also the next best thing you＇ll get to Lightwave without the Video Toaster or the new Lightrave dongle．
A huge list of power features includes advanced kinematic animations，particle systems， spline rendering，and so on，and there is enough in the tutorial section of the manual alone to keep the new user going for six months．Definitely not one for a beginner，but a good bet for the rendering professional．

Price watch：Real 3D v2，£xxx
Altemative Image（0533 440041）

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## Citizen Swift 90c

Perhaps the most notable aspect of the Swift 90 c is automatic sheet feeding, which is something of a novelty at this end of the market.

In addition the traditional control panel has been given something of a going over. Instead of an LCD display, there's a new sliding button and menu system.

Although boasting the odd extra, the 90 c isn't the quickest 9 -pin you'll ever see, with a top speed of only 240 cps - and that's using the ropy High Speed Dratt font. What's really surprising is the quality of the 45 cps NLQ fonts. While big images or curves invariably look jagged, standard text output is pretty neat, and is even better than the output of some 24 -pins.

Type: 9 -pin dot matrix
RRP: £219
Speed: 240cps draft, 45 cps NLQ Emulations: Citizen 90, Epson FX-850, IBM Proprinter III Fonts: Roman, Sanserit, Orator, Prestige, Script, Courier Plus, Courier Draft and High Speed Dratt Buffer: 8 k

## Fufteu DLITS0

Full marks for strangeness, as the Fujitsu is without doubt the weirdest looking printer by a long way. Unfortunately nil points for the sheet feeder, which is tripe. Still, a number of nice looking built-in LQ fonts are easy to get at from the simplistic front panel. Performance-wise it isn't particularly noisy, is medium pace at 60 cps in LQ mode and has a respectable printer bufter.

It also has a good range of emulation, though the Epson one is not the most common you could ever see. Print quality is potentially pretty good since those curves and jagged lines are nicely smoothed.

Throw in the colour option and you've got a large, light: ish, easy to use printer that's good for dealing with larger amounts of text rather than graphics.

> Type: 24 -pin dot matrix
> RRP: $£ 365$

Speed: 200 cps draft, 60 cps
Emulations: Fujitsu DPL24C, Epson LQ-2500/2550, IBM Proprinter XLL24
Fonts: Courier, Pica, OCRB, Prestige. Elite, Boldface PS, Dutch PS, Swiss PS. Non-LQ: Correspondence, Compressed, Draft, High-Speed Draft

Buffer: 24k

## Epsan LD-100

After close inspection of the rather minimalist front panel, you suddenly realise that you can't see into the machine at all, and that the sheet feeder is in fact located in the bottom of the front. This slides out to reveal a 50 -page single sheet feeder, which is something of a novelty on a dot matrix printer. It then accepts the paper and slides back in again.
While the front panel does allow you to swap between the seven built-in fonts (two of which are scalable), it is also an exercise in contusion and requires guesswork or a trip to the manual before you are completely familiar with it.

As usual for an Epson ES/P2 printer, the output quality is top notch. The LQ-100 may be more rough and ready than the others in the range but it still shares the same quality engineering.

Type: 24 -pin dot matrix
RRP: $£ 210$ Speed: 167 cps draft, 60 cps LQ
Emulations: Epson PS/2 Typefaces: Draft, Roman,
Sans Serit, Courier, Prestige, Script
Buffer: 11k

## Star LC-200

 While your average Star printer wouldn't win any beauty contests, they are usually very competitively priced. The LC-200 is no exception, offering bland looks, decent 24 pin performance, and an inexpensive route into colour.The single sheet feeder slots neatly over the tractor, and there is a choice of exit holes for paper. The actual feeder is pretty good, though there's a slight tendency for paper to stick on a ridge inside and not hit the feed hole if you aren't careful. It isn't particularly bad, but it does occa-
sionally happen. You know when the paper is in through because when it prints the LC- 200 makes a fair of racket, especially handling graphics - when it starts ti screech.

Controlling the printer itself is easy enough with the front panel being an old fashioned buttons and lights jot There are four LQ typefaces, in addition to a draft type face.

Quality-wise it ain't bad, but neither is it brilliant. you're looking for a workhorse printer rather than a stalion, this could be the answer.

Type: 24 -pin dot matrix RRP: £259 Speed: 225 cps dratt, 56 cps LQ Emulations: Epson FX850, IBM
Fonts: Draft, Sans Serif, Courier, Orator, Script Buffer: 16k

## Star LC-20

The LC-20 is a direct replacement for the LC-10, offerng three built-in typefaces alongside 9 -pin quality, as well as ease of use thanks to a cheap looking front panel anc simple internal mechanics.

You can add a colour ribbon at minimal cost, but youl need a printer driver - widely available from the PD Basically you're looking at the budget 9 -pin that's a bt fuzzy but thankfully much quieter than the LC-200, whie offering only one less typeface.

Type: 24 -pin dot matrix
RRP: £189
Speed: 185 cps draft, 45 cps LQ
Emulation: Epson FX85, 1BM Proprinter
Fonts: Draft, Sanserif, Orator, Courier
Buffer: 4k

## Citizen Swift 200

As you'd expect, the 200 sports the same command panel as its relation with assorted sliders and buttons all working in exactly the same way.

Adding the fact that the sheet feeder is just as good, there's also that excellent automatic paper feed mechanism.

Add a snap-off panel for font cartridges and you have a printer that's physically identical. Where the difterence comes is in the printer engine, with the 200 offering superb 24 -pin quality, and a colour option.

OK, so the control panel is definitely much cheaper than the LCD panel on the original Swift series, but it's also more sophisticated than all the
other printers in this price range, and while it may not be the quickest youll ever see it gives some of the best output.

Quality wise you're talking pretty much even with the Epson LQ-100 - although the larger characters are handled much better by the Swift. If you're looking for a best buy in this article, the Swift 200, with its six LQ tonts, cheap colour ribbon gption and high quality output, is it.

## Type: 24-pin dot matrix

 RRP: £259Speed: 180cps draft, 60 cps LQ
Emulations: Citizen 200, Epson LQ, IBM Proprinter, NEC P20 Fonts: Roman, Sanserif, Orator, Prestige, Script, Courier Plus, Courier Draft
Buffer: 8 k ( 32 k and 128 k options)

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# 溘 CDNGUMER GUIDE 

$\pi$hese are hard times, and despite claims to the contrary, there are lots of cowboys around eager to make a fast buck and relieve you of your cash.
Now that is not to say all traders are devious - indeed, the cowboys are rapidly becoming fewer and fewer as consumer knowledge grows. But as our mailbag proves, problems still abound, so how can we minimise any possible hassle?

If you have a good relationship with your local dealer, and you are a regular customer, buying from that source is without doubt still the best way.

He will value your regular custom, and you will not have far to go if problems occur. You will also have "an ear to the ground", and it's likely that second-hand bargains or special offers will reach you quickly.

Always ask to see any kit working, be it hardware or software. Check that all documentation accompanying it is complete. Read the warranty, including the small print. Guard against exclusions such as "No liability whatsoever is accepted" and the like.

## Seek discounts

Retain your receipt and keep it in a safe place. If the ink printout from the till-roll is one of those faded purple varieties, ask the shop owner to ink it in and sign it. Keep the packaging (inside a polythene bag in the loft is a good spot). Some warranties require returns in original packaging.

Cash has a remarkable effect. Always ask for a discount for cash, if you have it. Expect at least 10 per cent, or ask to have something thrown in with the price - ; printer leads with a printer, or disks with a major purchase.

Ask the owner to demonstrate the kit. Box shifters such as the major electrical retailers generally won't know a genlock from a gymslip, but a local computer dealer worth
his salt should be able to talk knowledgeably about his stock.

Ask about advice and tips in using the purchase. If you have seen the same goods advertised cheaper elsewhere, take the advert and show it to the owner when discussing price.
Above all, be friendly, but be firm. Don't be fobbed off if something does not seem completely kosher. like missing packaging or boxes which looks well used (a possible repaired item). Be wary of opened licence agreements on software (copied?) or well-thumbed manuals (previous visitor).

Mail order is probably the source of the biggest number of complaints. Often the cause is the fault of the purchaser, in not indicating clearly the exact nature of what's needed or failing to provide essential information such as correct address or credit card number.
I will deal with methods of purchase later, but when ordering by post, be it by phone or letter, be prepared for the pitfalls. Have the advert in front of you when you place the order. Read the small print. Look out for exclusion clauses or exemptions. Telephone the company to ensure the following facts. Is the item available from stock? Is the price as advertised? Does the price include VAT? What is the cost of postage? How long will delivery take? Are the goods covered by insurance during transit? What guarantees are offered? Who pays postage in the event of breakdown?

When you telephone, give specific information regarding your set-up - Amiga, add-ons, memory additions, revisions of frequently used software and so on. Ask about compatibility. These facts could determine

Wilf Rees reports on
how to ensure your hard-earned cash brings you best value, rather than anger and grief
whether or not a prospective purchase is suitable for your system.

If it is not and the error is yours, then the vendor is under no legal obligation to return your money. Always keep all correspondence, as well as copies of your letters.

## Checkpoints

When the goods arrive, check the contents carefully to ensure everything is present. Look for your receipt of purchase. Try out the goods immediately to ensure they work properly. Store the packaging safely. If there is a fault, do not attempt to repair anything.

Should any of the above checkpoints be negative, then contact the company immediately, describing the nature of the problem. Be calm and polite, and dont start demanding redress or compensation.
Otten problems arise purely from misunderstanding and manufacturer's omissions, not directly the fault of the vendor, but they are certainly their responsibility. The vast majority of mail-order companies will correct any problem without hesitation. You may however be requires to return the goods at your own cost.
When it comes to payment, cash is often the best way to deal locally, allowing you to negotiate a good deal, but when it comes to any other kind of order, the situation is quite different.

The key factor governing how you pay by mail order is if the article is over $£ 100$, ans whether or not you have a credit card. The reason for this definition is embodied ithe Consumer Credit Act 1974.

This Act determines statutory consumer rights affecting purchases over $£ 100$ bought on

radit. Cards such as Access, Barclaycard and listercard offer protection from retailer malpractice, inich really means these purchases are best conducted 7) plastic.

An important point here to clarify is the Elierence between the aforementioned cards, and wres such as Switch or Connect. These are not suered by the Act, as they are debit cards, without credit tacily.
Secondly, if goods are ordered on a second user card, ten cover is not automatic, and such liability has never seen tested in the courts. Never send cash through the zost. Who do you blame if it goes missing?
$I$ you must pay by cheque or postal order, keep the tebs or counterfoils. If credit facilities are offered, never agree to anything until you have full details of the archase agreement. You will in all probability get better tias elsewhere.

## Guarantees

It is often the case that shops will offer a guarantee, in assition to the manufacturer's. Ask for details about agairs, and time taken. A manufacturer's guarantee can se very useful, as long as the company still exists.

Whatever a manufacturer's guarantee says, rememser you can still demand your statutory rights from a thop, even if the manufacturer warranty has expired.
If your computer breaks down two days after gurchase, it is unreasonable for the retailer to say " 7 will send it back to Crappy Computers for repair".

You can demand a replacement or a refund. If it areaks down after two months, then the situation is slightly different. On-site maintenance contracts can avid this problem, but I hope you have better luck with

Wang than I did! Ask how long a guarantee repair will take. If a manufacturer guarantees turnaround within x working days, then they are liable to compensation if they fail to achieve this.

If you do have a problem, and you have fulfilled all of
the proper procedures, without any joy, here are some useful tips. Write to the company by Recorded Delivery, addressing your correspondence to the managing director stating clearly the full circumstances.

Write to any trade organisation to whom the retailer or mail-order company might belong. These organisations always have codes of practice which detail minimum standards expected of members.

Write to your credit card company enclosing a copy of the letter sent to the MD They will act as mediator in a dispute. Write to your local Trading Standards or Consumer Protection Dept. explaining all the facts and enclosing copies of correspondence.

They investigate false or misleading descriptions, as well as malpractice, and may prosecute. Don't get angry and abusive, you just end up sounding stupid and acting like a prat. Don't contemplate any silly actions such as distributing defamatory literature in front of the shop. This has happened in the past and the culprit was sued for $£ 2,000$ for damages.

If goods have failed to arrive, ring the company often, being polite but firm. Don't accept the offer of credit notes, or any similar carrots.

## Final option

When the waiting becomes unacceptable, write by Recorded Delivery stating your intention to offer a further seven days grace after which you will not accept the goods.

So, after all of this grief, you still are not satisfied. Well there is one final option, and one you might not have considered as an alternative, but you can sue.

The Small Claims Court was set up to solve just this kind of problem. It handles disputes up to $£ 1,000$. It is fast, inexpensive and fairly user-friendly. Disputes are settled in a non-threatening environment, and the arbitrator will rule there and then on the outcome.

If you want to consider this option, go along to your local county court where you can obtain leaflets which explain in detail how the whole process works.

## What are my rights?

The laws which determine consumer protection are: The Supply of Goods (Implied Terms) Act 1973; The Consumer Credit Act 1974; The Unfair Contract Terms Act 1977; The Sale of Goods Act 1979; The Supply of Goods and Services Act 1982.

These laws cover all of the UK except Scolland, where common law covers most situations - otherwise specific issues are dealt with on an individual basis. All of these laws are written in the usual gobbledygook you might expect from lawyers, but in the context of how you stand, the basic principles are:

When you buy something, the seller and yourself enter into a contract. A contract can be both written and/or verbal. Any dispute you have is solely with the seller. The manufacturer has no involvement.

Don't be fobbed off by "III send it back" stories. Goods must be of "merchantable quality", that is fault free and reasonably fit for the purpose for which they are sold.

The law also covers second-hand goods, but the condition will be reflected in the price, so you are not legally entitled to "top quality". Goods must be "as described", whether on the package, in an advert or by telephone.

You are entitled to reject replacement or alternative items. Goods must be "fit for the purpose described". Wood glue must glue wood. If any of the above conditions are not met, you are entitled to one of three options, depending usually upon how long you have had the goods, or how serious the problem is.

Firstly, you can reject the goods immediately and get your money back. Or you can obtain a cash payment to make up the difference between what you paid and the reduced value of the goods you bought. Finally, if you both agree, you can get a replacement or a free repair.

Do remember the element of fairness. You are not entitied to any form of redress if you examined an item when you bought it and should have noticed any problems, or were told about them at the time.

You can't expect compensation if you did the damage yourself or simply decided afterwards that you didn't want it. And if you receive something as a present, then the original buyer must pursue any problems.




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1 A600/1200 2.5" DRIVES


A BIG COMPETITION also appears in this issue, courtesy of Burgess Video Group we have a selection of great videos up for grabs, and if that is not reason enough for getting hold of a copy, you will also find full details of the forthcoming International Computer Show at Wembley.

Access Amiga magazine is now in its' third successful issue, and continues to deliver some of the best reviews ever made available to Amiga owners worldwide. Its' style, quality, and content earnt issue 1 a rating of $81 \%$ in Octobers CU Amiga, so we must be doing something right.

Issue 3 is available now, and contains reviews on some of the latest products available for the Amiga. These include the very latest versions of Rombo's Take 2, ASDGs Art Department Professional, and Digital Creations 'Brilliance'. On top of all this you will find interesting reviews, articles, show reports, letters, public domain reviews, and the very latest news on the Amiga scene.


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When you first buy your Amiga you're so pleased with it, you don't give the old floppy drive a second thought. It's there internally in the case, and what more do you need to know? Well, soon you realise that one floppy is never enough, and like RAM or hard disk space, you can't have too much of it.

Copying disks is a nightmare without another drive, so it's advisable to have more than one at your disposal. There's no reason why you shouldn't have more, but then you run into some difficulties which you will need to be aware of. But then that's why we're here, isn't it? Aren't you the lucky ones!

When you get to the shop and say: "Can I have a floppy drive please?" the shopkeeper will suck his cheeks in like a man estimating your plumbing bill.
"What sort of drive?" he'll say.
"Er..." you'll snap back cleverly.
And you'll feel a bit of a prat, won't you? Not to worry. Here's what he's talking about.

Internal drives are the ones like the one which is already in your Amiga. If you have a big box Amiga, like a $1500,2000,3000$, or 4000 , then you have room for more internal drives. If you have a 500,600 or 1200 you don't. There is room for only one drive in the case and it's already there.

External drives connect to the machine via the external drive connector, on the back of the machines marked Disk Driye. This means that the external drive has its own case, and a lead which plugs into the port at the back. There are single drives and double drives, which obviously increases the power overload, but increase your productivity.
The size of the drives is not usually important, as most Amiga drives are 3.5in, but some can be had which are 5.25 in . These are for IBM style big (very) floppy disks, and are only for use with IBM emulators like the Bridgecards.

A number of good high density drives are around too, which run disks which look very similar to the normal double density disks you run all the time, apart from an

extra hole on the opposite side to the write protect tab, and a little HD symbol on the bottom near the sliding cover.

These disks format to 1.76 Mb , or twice the capacity of a regular 880k floppy, simply by having a disk which is more dense than regular disk media.

This is just like the difference between chrome and metal cassette tapes, and the cheap ferric oxide ones you get free from

## Speed comparisons

The speed of floppies is terrible, compared to hard disks and CD ROMs. Transter rates and access times are tossed about like so much technical salad, but the basic idea is this. Try it. If it's fast enough, buy it, if it sucks then go elsewhere.

Also, access times and transfer rates are not interdependent. It may take only 19 ms to access the disk, but if it takes ten minutes to transfer the thing, what's the point?

## Floppy

Typically have access times which are quite fast these days, in the 20 ms mark, but the transter rates are awtul. in the 100 to 200 kps range, so large files take ages to load/copy/save.

## Hard drives

Most HD manufacturers head for the 20 to 30 ms access times, and transfer rates of around 650 to 700 k per second.

## CD Rom

Faster than floppies but slower than hard disks, although the speed is getting up now. Most adverts for conventional CDs talk about transfer rates of about 150 k per second, access time about 500 ms . Double speed models run at about 300 kps , with access times around 280 ms , and the newer quad speed devices are running up to 600kps.


HOE
= do the most at your end to put off this eful day. But what happens if you do get mupted disk?
You can use DiskDoctor, but I wouldn't -mmend it. What I would recommend is moprograms - Disksalv by Dave Haynie, nd a program called ARestaure by Jehan es Proux.
Disksalv is an essential tool for getting ay lost data back from a clobbered disk. It ate a clean formatted disk and bypassing $t$ conventional Amiga disk routines it Ens a copy from the bad disk to the new $=$ epatching any missing blocks etc to mete the files run.
Yyou even recover half of what you lost

## Phil South looks at the floppy disk. Is it friend or our foe? And why do

 you want one anyway?on the disk this program is well worth the effort it take to get hold of it (new versions are available on CIX as we speak).

ARestaure is an undelete program. If you unwittingly delete something this program will get it back for you. Deleting a file simply destroys its entry on the directory, so as far as the $O S$ is concerned it is just

## DTowsw. 3 c

Batistics for wolune on disk drive
Iblane status:
levist driver mane:
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Iree space in KB :
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Ferent futt:
bown bad blocks:
filiss systen:

Low cylinder:
High cylinder:
Hunber of cylinders:
Humber of surfaces:
Blocks per track:
Block size (bytes):
Reserved blocks:
Preallocated blocks:
Haxtransfer (KB):
Menory type:

loose blocks of data. You can put it back on the directory map with this program - very handy for people who use point and click programs like Directory Opus or SID for their disk housekeeping.

What should you buy and why? Well this isn't a buyers' guide so I can't tell you what, but why? Well that's easy. You just have to have the money to buy one, and about $£ 40$ should cover it, plus an eye out for any extra features.

If you haven't got an external drive for
Quarterback tools can provide detailed disk information your machine then go and get one, and stop complaining. You know it makes sense.

## Jargon buster

access time This refers to how long any storage device can locate and begin loading a piece of information from the disk. See also Transfer Rate.
daisy chaining The act of chaining one drive onto the back of another one.

Some disk drives have another drive port on the back and you can plug another drive into it. The name comes from the way the drives look when fixed together resembling a daisy chain.

DIP switches A little tiny row of toggle switches fitted to a device or motherboard, usually for activating functions or configuring a device.

The DIP refers probably to the Dual In-line Package, or the little multi-legged chip that the switches are mounted on, and how they are soldered onto the board.
drive click Amiga drives click every few seconds or so because they are looking for a disk in the drive. Some PD programs exist to stop this, but some drives actually have a hardware solution to the problem.
floppy disk Actually most disks these days aren't floppy, but they were. In the history of computing they were big 5 in or even 8 in thin plastic things which bent as you were putting them in the drive and were generally a pain to work with. Now we have then in nice neat 3.5 in hard plastic so we can get away with abusing them a bit more. Not!
power overhead Daisy-chaining drives together is a little bit hazardous on the A500. The power overhead (the power left after some is drawn by each device down the drive port) decreases to very low levels as more drives are added.

One or two external drives is all you can really get away with, and it's always safer to add a drive with its own power supply if you can.
slimline drives used to be big lunking great boxes the size of a VCR, and then came the slimline drive mechanism.

Some said at the time "some day all drives will be made this way", and they were right.
transfer rate The speed at which data is transferred from one device to another, like from a modem to a computer or the disk drive to the memory. See also Access Time.

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thing. For example, once an animation is generated, you can convert it to a different resolution and colour combination, combine it with other animations, include additional frames, split it into various smaller files, delete and replace individ-
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Like most other power packages, ARexx has been adopted allowing access to personalised ARexx scripts and potential links to other programs.

All round the addition of Workshop certainly doesn't do Pixel 3D Pro any harm at all - although a combination of ADPro and ProControl would be a far superior image processing combo.

Still for the dedicated ray tracer the new Pixel 3D Pro is more attractive than ever - even though it appears nothing has been done to improve the rather quirky nature of the main program, which still insists on occasionally removing or adding the odd face for no good reason.

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The memories of Christmas recede into the foggy corridors of your mind. The potential whare of computer technology anoying that special family event ad creating floods of tears has atied after loading a game in for seiaddies.

They played on Oscar until their meachs grumbled so loudly that tery remembered they were any.

As the days and festivities pass, a nagging feeling nems: I need to know how - see this machine more, I've got to do tex report and make it look professional. It Cod, we haven't even bothered lookmat that Workbench manual yet - it sooks like it's written in a foreign Inguage...

You enter the newsagents, brow burmoed with determination as the visual mault begins. Tacky, glaring, day-glo momuter magazine covers bellow at the Einas screaming:
"Buy me!"
"No, buy me!"
'Don't look at him, buy me. I've got exclune Stretffighter 2 stickers hot from Japan... or sit Grimsby printing press emporium for the lecbryed and clichéd?"

You remember through the haze of bad design the magazine that you came in to buy - a quiet, well dressed little number with a line in intelligence, Amiga Computing. The cover settles your fears: "The Absolute Beginners' Guide". You think back to the last article and pick up the trail...

## Workbench

The Workbench on an Amiga is like a workshop or work top - it's the control entre where things are created, added to and destroyed along with many other things.
If you have a hard drive, simply switching your machine on will boot up the Workbench. If you've been following the gride since last month, you'll already know how to boot up the floppy disk version.

A quick reference to the difference between floppy and hard drives. A floppy drive is a nasty, slow and unreliable way af storing information and the data comes on a disk.

A hard drive is usually built inside and an store far more info (up to whatever size you want to pay for). It runs much quicker and is far, far more resilient to wear and tear (as long as you don't drop the computer).
We'll go into more depth with both of them in another issue. For now, let's concentrate on actually operating the basics of the Workbench.

Take a look at the icons that run down the left-hand side of the screen. These are picture symbols for the various programs that they represent.
Go up to the one labelled Workbench, asing the red arrow (your pointer) which

## Adam Phillips guides you through your first precarious, post-Christmas magazine rack encounter

top left of the screen. It doesn't have the right time but don't worry about that yet. Study the blue framed window that contains the time piece. You'll see that it has a blue title bar running along the top with the word Clock in it.

Go up to this bar, press the left button down and keep it held down. Now move the mouse and you'll see that the window follows the movement of your hand.

Bringing your finger off the button places the window in the position you put it in. Take the clock back to its original place using the same method.

Take a look at the bottom right-hand corner of the window and you'll see a small white marker that looks like a cut in

## Visiting the newsagents

is controlled by your movements with the mouse. Click twice ("double click") on it quickly with the left mouse button.

You'll find that the left button is generally used for selecting options, such as loading and moving things around.

A window opens up which simply displays what files and programs the selected icon contains. Imagine this system as the modern equivalent of a Russian doll - opening up a main directory (a place where all the files and programs
are kept) reveals smaller directories or files which then in turn open up to reveal still more and so forth until either you choose the desired file or the computer has displayed all the avenues available.

Again double click on the drawer labelled Utilities. This opens up another window with more icons. Select the Clock icon using the same process as before.

An analogue clock will appear in the

half square. This is called the sizing gadget. Click and hold on it with the left button. Drag the mouse outwards away from the window and you'll see two lines stretch and move with you. These determine the size of the window. Release the button and it is redrawn to your exact requirements.
The right mouse button is commonly used for calling up pull down menus at the top of the screen and selecting them. Hold the right button down and you'll see the words Project and Settings appear at the top.

## Black box

Keeping the button pressed down, go up to Projects and a menu will appear. Still holding the key, move down the list and you'll see a black box appears around each option in the list. Rest on Digital and release your finger. The clock will now turn into a digital read-out in the top left corner.

From here, if you take a look at the top left of the window, you'll notice a little white square. Clicking on this will close the clock box.

That just about covers basic window manipulation for this month. Have a go with the other drawers in Workbench and experiment until you're 100 per cent confident with the aforementioned gadgets.

If you have any spare time, assuming you bought the Desktop Dynamite pack, open up the Wordworth v2 manual and start reading - it'll take a month to plough through...

- Next month we'll take a look at the remaining window facilities on offer and installing software on the hard drive.

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[^4]Full motion video (FMV) has become a monster buzzword this year, and one which the industry has until recently failed to deliver on. Now though, Mpeg decoder cards are appearing in a steady trickle for all machines, and the Amiga is right in there with its first release, the Peggy board from German company Helfrich International.
A card for all Zorro II or Zorro III expansion slots, Peggy comprises the CCube decoder hardware, based around the CL450 video decoder, and a built-in genlock to send output to either the monitor screen or the outside world.
The latter is a little problematic as the board has no video output, just RGB on a 15 -pin D-plug, so users who wish to videotape their Mpeg movies will have to use an RGB to composite encoder.
Supplied with the Enhanced Graphics System (EGS) libraries, Peggy utilises retargetable graphics techniques and a pass-through mode similar to that employed by the Piccolo and Picasso boards. Users connect their Amiga output to the board's 9 -pin input and their monitor to the 15 -pin connector.
Once set up, Peggy passes all Amiga video signals through to the monitor, and mixes its own with them when asked to by software so that Mpeg movies can be displayed in Workbench windows using the talents of the integral genlock. These displays are therefore in full video colour, which makes for superb previews of the finished Mpeg project.

As we go to press, software supplied with the board has yet to be finalised, and the Mpeg player utility we were supplied with used the Peggy hardware for real time playback, but was very basic. It


The available set-up options are nothing If not comprehensive..
was impossible to use windows over the Workbench screen or on an EGS display card, thus limiting the board's usefulness.

For the purposes of creating Mpeg streams in the first place, a professional encoder program was included with our Peggy card, but as this uses the EGS libraries, a suitable display card, such as Piccolo or Rainbow, must be present if you want to use the software. Additionally, the professional software costs $£ 250$ extra, though a more basic encoding package will be bundled with the board.
The professional software is a dream to use and offers complete control over the encoding process. Mpeg streams are treated as projects within which any number of scenes can be included, and the

## What is Mpeg?

The Mpeg video compression standard, named after the Motion Picture Expert Group which formulated the standard in 1991, is a set of rules governing the way in which video and audio is compressed such that the resulting file takes up very little space on disk and plays back at full video speed.

Beginning life as nothing more than this set of paper-bound rules, Mpeg has now reached the hardware stage with a number of companies producing decoder chips specifically designed to decompress Mpeg files (known as "streams") at 25 frames per second. The best known example at the moment is C-Cube's chip set, and it is this set which Peggy and Commodore's CD32 full motion video cartridge contain.

An Mpeg stream contains either video information alone or combined video and audio, and the Mpeg decoder's job is to extract both. A system decoder first splits the stream into timing, video, and audio information, passing these on to their own decoder chips.

When the signals have been decompressed, the timing information is used to recombine them as a complete PAL or NTSC composite video signal which can be displayed on any TV, monitor, or taped by a VCR.

In other words, from a set of files on hard drive, whether digitised video or computer animation files, the Amiga can use Mpeg to create a digital movie then play it back at full speed.

Mpeg's only major drawback at the moment is that in its first incarnation, Mpeg-1, it has a full video frame size of only 352 by 288 , which works out at lo-res interlace with overscan. Picture quality is therefore far from TV broadcast standards, and is lower than normal video quality.

When compressing and playing back computer animations, the degradation can be marked, making Mpeg more suitable for multimedia and games work, but digital videos on CD are still possible, and as there are many ways in which the Mpeg encoder software can be tweaked, the original stream can be optimised either for smallest storage space or best quality.
scenes, individual frames, or ranges of frames can be cut, pasted, and generally moved around with ease.

When the project is set up to the user's satisfaction, there are plenty of options available for those with specific requirements or a good knowledge of the technicalities of Mpeg. Playback parameters include frequency ( 24,25 or 30 Hz ), image size, and whether there is a set rate or file size the user requires.

For example, if the finished Mpeg stream was to be used in a game demo
and needed to fill no more than 200 k as floppy or hard drive, the user could a target size for the file and program would endeavour to meet requirement.
This might not be possible, of comes and in such cases reducing the qualit the finished playback or cutting the ? ject's length would be the only answe

Standard Mpeg size is $352 \times 288$, ce res interlace with video overscan, but 3


Encoding can be slow, but the end results are almost always spectacular

-aber software has the option to cut an crarter screen for fast previews or node to dimensions set by the user.
all frames are checked for size and nold to the finished Mpeg size before -ating, so a lot of time can be saved if tur aser ensures that his or her source maphics are of the correct size to start 5
Final playback can be PAL, NTSC, or $a$ Workbench window, and there is an

## Class cruncher

Mpeg encoding is a complex process governed by strict rules laid down in the ISO CD11172 standard, and works in a broadly similar way to a DPaint animation.

Individual frames are not stored as full frames, but are interpreted as the difference between one frame and another, which means that a finished Mpeg stream need store only a very small amount of the original frame information.

To aid in judging this process, a number of frames, known as Intra frames, are stored completely and used as reference points in the animation. From these, the encoding program works out how much has changed between one point and another, then creates "interpolated" frames, which are the actual differences stored as code.

The techniques used to judge changes are known as forward prediction and bi-directional prediction. Forward prediction is a simple matter of stopping at an Intra frame (or I-frame) and looking ahead to the next few frames coming through the encoding
process before creating interpolated frames.
Bi-directional prediction is much more effective because it looks forward and backwards to the surrounding frames and creates a more accurate picture of animation changes. This method also saves much more space than forward prediction, and is a lynch pin in the Mpeg encoding process.

As an example, a 90 frame Mpeg stream we created for this article contained 16 Intra-frames, 15 predicted frames, and 59 interpolated frames. This means that two-thirds of the original data has been interpreted by Mpeg as changes and stored in a much more efficient way.

Total file size for the 90 original frames was 6 Mb , an Anim-5 file created using the frames, scaled to the same size as an Mpeg screen, came to 1.5 Mb , and the finished Mpeg stream was only 425 k in size. That's a 72 per cent saving in space, and to top it off the finished file will play back at 25 frames per second using Peggy's decoder hardware.
option to have the stream displayed through an EGS videolayer window, so the user who needs lots of previews or some digital movies for presentation and multimedia work should be happy enough.

The best results are obtained by using PAL interlace, but until the system software is completed and a more flexible video solution worked out, it is impossible to say how good this would look on tape.

Filtering effects can also be used to radically affect final output. A simple to use menu screen can be summoned to

## - Just about everything the user could want

 in one programoffer the user the option to pre-process frames using an ARexx script (ADPro scripts or ProControl scripts would do nicely), drop in a backdrop picture, clip a rectangle from the frame, or apply a con-

## Iin motion

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Well, we've given you Amos 3D, but what can you do with it? You can use it to creanlliant 3D objects for all your Amos cremins, and even compile programs antining 3D shapes, too!

Amos 3D, like the compiler and other Z-ans like the excellent Amos TOME, is $=$ Amos extension. This means that it adds memands to the Amos command set. You mave an editor program called Object Windeller, or OM , with which you can create arerown 3D objects for use with Amos.

You run OM either by typing OM if wre a shell user, or simply clicking on the mif you are running from Workbench. TM prefers to run alone, so free up memory In quilting any other programs you may

## Digital


tave running. Although there are a lot of mample objects on the disk to get you ming, you have to create your own objects asing the OM. You create shapes using primitives and bolt them together into bigprobjects.

The objects you make can be shaded any alours you like, and you can even draw small bitmaps onto the sides of shapes to make them more interesting.

The program features a lot of tools for stretching, squashing and forming primitives, like squares, circles, cubes and pyramids. You copy the primitives to work areas an the screen called "shelves", where you work on them with the mouse.

To copy a shape from the shelf it is stored in from the ten small ones at the top of the screen) to a shelf you are working in (the two big spaces underneath) you simply dick the Copy button.

Once a shape is copied into a working shelf, you can begin to move it around and alter its structure. You can deform a shape in many ways, like squashing and stretching the whole shape, or even moving a single side while keeping the rest of the shape still.

You do this by selecting a point, line or face, and deforming the selected item by clicking on the Rotation control (or the arrows next to it for finer control) while holding the button down and moving the mouse.

Selected faces have a special marker on them so you know which is the active face

## File formats

The objects are in a very specific format, and each object is in fact a collection of a number of files, not just one. If you intend moving objects around, you will have to shift all the components of the object, and not just the first one you come to.

> Amos exponent Phil South looks into Amos 3D, in the first of a two-part tutorial
when doing an operation on it. Moving a single face is really clever. Here's what I mean: Load a cube into the work shelf. Select a line on the cube by using the select icons down the left-hand side.

## PULL TOOL

The tall button down the right of the selection icons is the Pull tool. Click on either end of this to pull the line back and forth. Click on another line or face and pull it back and forth. Notice how the shape changes.

The RGB tool is used for changing colours, allowing you to change the colours of the objects and faces on-screen. You can use the information in this requester to gen-
erate Amos palettes which are suitable for the objects. Once you have reshaped the primitives into something a little bit more interesting, you can glue them together to make other, more complex objects. This is done simply by selecting the faces that need to be glued together on the two objects; and once selected this is done automatically.

Shrink the object you just twisted about to half the size by squashing it in two dimensions. Select your object and click the Group Plus symbol. Now use the stretch/shrink keys to shrink the object down.

Load another object into the other work shelf. Then select a face on that object, and a face on the previous object. With two faces


It should be easy to map surface detail onto any 3D object
selected, click on the Glue button, and the two objects are automatically glued together.

If the blocks look funny when you do this it may be that the wrong block is being printed first. Use the Precedence/Culling button to correct this.

Then you can apply surface detail - patterns in four colours which you can map to the selected face of the object. This is done by drawing lines on a grid, which are then filled before they are attached to the face of the object.

You select a face, and then open the Surface Detail tools. You draw on the grid and the detail comes out on the shape, the lines being filled. The shapes you can do with this utility are fairly elementary, but it's surprising how little the brain needs in the way of clues to make a 3D shape look right.

Just a door on the side of a car shape or a window in a house can make the difference between a few shapes and some recognisable objects.

- Now we've made a shape, next time we'll take it for a spin. See you then...



## Head start

With Amos 3D, this double-tutorial and a copy of the original manual, you'll be incorporating 3D objects into your own programs in no time at all.

If you don't yet have the manual, turn to our disk offers on page 29 for an unbeatable offer!


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Reviewers may come and go but no matter what computer, there is and always will be a public domain that churns out titles at an amazing rate to satisty the constant appetite of soltware-hungry punters.
To all the PD libraries who send this wealth of material in, please keep it rolling through our letterbox and if it's any good, we'll do our damnest to review it.

## Amiga 3

## Holmes Bros

Amiga 3 is a tasty magazine disk containing both games and utilities. It's been pulled together by the Holmes brothers (PD's answer to the Mario lads) and offers great value for money.
When booted in, the user is presented with a menu of the different programs on offer - games on the left, utilities and full instructions (what a nice change) on the right. Click on the desired title and you're off...

## Alien Bash

The film Aliens has influenced many games from Xenomorph to Alien Breed. Its mixture of suspense and action has obviously caught software developers' imaginations.
Enter Alien Bash, the public domain's answer to the epic Jim Cameron flick. Viewed from above, the player has to guide his gun-wielding man round 50 scrolling levels of mayhem, rescuing prisoners captured by the aliens of the title.

These extra-terrestrials are no walk over - it took me a while to get off level one due to the constant bombardment of bouncing masses of brains inside bubbles

## Adam Phillips takes over from that guru of the public domain, Phil Morse, hoping to fill his demi god-like shoes with this first

 crop of reviews
## PUBLIC

 SECTORA(that's what they look like anyway). I regularly found myself being pushed into a corner and swamped to death by these creatures.

Having said this though, once you've killed one of them, you are rewarded by a huge splattering of blood on the floor. Quite soon the game screen begins to take on the look of a splatter movie.

To aid and abet you in the struggle for human supremacy are a number of meaty power-ups including more speed, shields, triple firer, missile launcher and a smart
bomb that clears the screen you're on.
The prisoners that need saving are found surrounded by a shield, so frantic bashing on the Fire button ensues while all around the aliens close in. Once destroyed, simply touch the hostage and move on to the next one.

Although being the weakest game on the disk, it's still good fun. It can be extremely frustrating at times when you simply can't run quick enough to get


## Motorola Invaders 2

## Pathfinder PD

We've already had variants of Alien Breed and Bomb Jack this month and now with Motorola Invaders 2 for the A1200 only, we step back in time to the very creation of the arcade game itself Space Invaders.

That game happened to revolutionise the entertainment and leisure industry as we know it. MI 2 is a title which dangerously veers towards that vague idea of a cult classic laking elements from Galaxians and Space Invaders and using them in a stylistic and bold way.

The first thing I noticed when I booted up is one of the longest and clearest samples I've heard from an Amiga. If you're a Metallica fan, then the delight is doubled as the thrash group hammer out the chords.

The actual gameplay is a case of shooting up the viruses living inside your computer. They come in various formations from massive crowds of the blighters to the organised ranks as seen in Space Invaders.

When shot, the diseased bytes don't blow up, they drop to the ground like dead flies and if they hit you on the way down, a life is lost. This can make the program quite difficuit to play and
requires careful shooting and some tactical manoeuvring.
Motorola 2 has eight levels and four "differing playing styles" and is worth a look it only to see something as old as the hills done with style, instant appeal and panache.

away from the xenomorphs and end $=$ dying horribly.

A500 owners will have to put up wit the occasional juddery scrolling but A12 owners need not worry.

As it stands, Alien Bash is quite a ja3 game and does have that "one more gr feel - a good reason to take a look Amiga 3.

## Bomb Jacky

I remember in the old days going down the software shop in Macclesfield, buyia Bomb Jack on my Spectrum and playio the little bugger to death.

As you've guessed even with the cur ning use of a $Y$ on the end of the name this is a souped-up, multi-screenes scrolling, power-up toting version of arcade classic.

The scenario hasn't changed - jum and run your way through each level cier lecting all the bombs before their fuses $n=$ out and blow you to kingdom come.

Enemies are in ample supply and coner in various guises ranging from snails ant melons to mutated pacmen. Some simpl follow a set path while others constan chase and annoy the hell out of you.

The graphics are fun if a little

## Calling all PD Iibraries...

and individuals with anything remotely worth my while having a peek at. If you want something released as PD, or you're a library with stacks of hot new stuff that you haven't seen reviewed in these pages yet, why not drop me a line with a copy, full documentation and everything clearly labelled. I promise l'll at least look at your work.

From music to education, business to utilities - anything you felt deserved your shoving onto a floppy disk, lemme at it and I'll do the rest. Address?

## Adam Phillips, PD submissions, Amiga Computing <br> Europa House, Adlington Park, Macclesfield SK10 4NP




Graphically, the game looks a little basic but there are nice touches with the animation - if you leave your character too long, he yawns and goes to sleep. The turtles, when changing colour, put on the new one as if it were a jacket. These and others add a real feel of professionalism to the title.

A1200 owners will have to look out for screen corruption if they have a hard drive because it appears to interfere with the game coding in some way. The program is still playable though but it's a bit of a shame this can't rectified in some way.

Doody is a cracking game which has
that Bubble Bobble/Rainbow Islands feel to it, making this title the most absorbing of all those on the disk.

## Atoms

I've seen this kind of game on a couple of occasions and it has be said that this version is the slickest of the lot in terms of presentation.

The basic concept is this - each player (two to four) places a coloured atom each turn on the board which is basically a large grid. It's possible to place atoms in

## Mr Men Olympics 1993

## Virus Free Software

Everyone knows the Mr Men - Mr Tickle. Mr Happy, Mr Messy and Miss Single Parent. They played a part in most childhoods after the 60s, and Unity, the people behind this release, have obviously decided that they didn't want to squander such great material.

So they've produced a children's game that plays and looks like a commercial piece of software.

The actual game centres round five different sporting events - the 100 metres, weight lifting, the hammer, pole vault and javelin throwing. Like all sports


Mr Tickle is running up the track
as Mr Skinny prepares himself to
be launched into orbit
sims, the majority of these events are performed by waggling the joystick frantically to gain speed or strength and then hilting the Fire button at the right moment to succeed.

The javelin, for instance, involves speeding Mr Tickle up via the joystick and when he reaches the throw line, hitting the Fire button.

It doesn't end there - the javelin in question is actually Mr Skinny who flies through the air and the player needs to help him further by flapping the characters arms with the controller.
All the levels with the exception of the hammer throwing section work well on a simplistic level and are ideal for young children.

More events would have been better but the presentation, ease of use and every character tooking like it's been lifted off the page of the Roger Hargreaves classics, makes this title into something a little special.

If you want your young six-year-old kids to play something a little different from the usual beat-em-up games then slip this into the disk drive they're sure to have a good time.

## Rags to Riches

## Pathfinder PD

If Monopoly is your game then Rags to Riches is the ideal electronic companion. It's an original board game designed and produced on computer so you never have to worry about losing any of the pieces.
The basic idea is to make as many hotels as possible and amass large amounts of wedge. This is not a simply as it sounds - there are only a certain amount available to be built in certain locations so the players (two to four) have to rush to outdo each other.
On the path to successful building, plans, planning approval, electricity, plumbing brickwork and other factors have to be bought.

There are plenty of variables such as windfalls and gambling and the whole package works well, but unfortunately I couldn't help feeling that everything was just too random and not enough skill based. Having said that though, if you're a board game nut then this could be just up your Park Lane.


Move around that board and amass your riches

## >

the squares together, making them unstable.

Once a certain number of atoms are grouped together, they explode across the board, changing everything that gets in the way to their colour.

There are various rules affecting the gameplay such as chain reactions caused by other players' atoms reacting off yours. This can lead to situations where you think the game is in the bag but the opposition's single atom is in an ideal spot to completely wipe out all your colours.

A one-on-one against the computer option would have given the game more levity but as it stands, it's a good laugh especially with four people involved.

## Boot Intro Construction Set

When the magazine firsts boots in, the user is presented with an intro screen containing information inside coloured strips.

BICS is the program that does this and now the same can be done to a disk of your choice. By selecting the construction set, the user is presented with a screen where it is possible to enter text and the

colour of the strips themselves.
From there, install on a disk and when used next, it will flash up the desired text. This useful for sending messages and instructions to friends on disk or simply to make the front end of a game look more attractive to the eye.

The only downer is the lack of hard disk installation but as the Boot Intro Construction Set stands, it's a effective piece of software.

## Molecular Weight Calculator

A brief review here - MWC is a program that accepts a chemical formula and returns the molecular weight. It works and if you're a scientist or anybody else with a desperate need for weighing molecules then many a merry evening

can be spent with this smooth operator. Overall if the Holmes Bros can keep this standard up over the next few months then Amiga disk magazine is well worthy of investment on a regular basis.
With its professionalism, fun and real value for money, Amiga 3 is a must buy.

## Sonic

## Virus Free PD

Exclusive! Sonic the Hedgehog is making his debut in the Amiga PD. Well, so it's not true, the reality of the situation is that
this is a non-playable demo showizs Sonic strutting his stuff on ther Commodore.

The results, while not up to the Me Drive standards, show the game cortir most likely be well implemented on your favourite computer but let's face it, unles someone, somewhere out there in the ber world fancies a huge lawsuit and cose case with Sega on their doorstep then ain't never gonna happen.
The disk is worth getting for novelt value and the speed of Sonic's movemerser alone, but it'll only keep your interest a couple of minutes.

## The Beginning of the Earth

## Pathfinder PD

Designed as a children's educational pos gram, this title is a slide show tracing ter origins of the big bang and the subse quent forming and creation of the plane and its wildlife.

There are about 20 slides in all contais ing information and reasonable lookipictures of what happened all those mis lions of years ago.

By the end of the show, which does last for very long, I wanted to see mont which is a good sign but I hope the pat lishers intend to release more disks in bundle package which go into mor depth.

If you have children or indeed if you's a kid and are interested in the planet and dinosaurs then take a look at this.


The fully playable
pant-splitting mega game... not

## Contact addresses

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U158 NOERRORS - Hides physically damaged tracks on both floppies and hard disks. In effect making useless disks, usuable U157 ARQ 0.99 - Changes the boring old Workbench requester U146 AMIGA SYSTEMS DISK - Host U146 AMIGA SYSTEMS DISK - Host of Amiga system diagnostic checkers, and performance tester,
W1II GOL F SCORF. Golf tlly meceder UlII GOEF SCOM - SOLVER U112 WORD SQUARE SOLVER - Finds those hidden word in those word square puzzies.
U167 BIORHYTHMS - Plos your personal graph for any month of the year: Physical, Emosional, Intellectual.
U180 BROWSER II - Good file transfering programme, and
U191 TYPING TESTER - Evaluates your typing speed.
U206 RACE RATER - Horse racing, outcome prodictor. Work U206 RACE RATER - Horse racing, outcome predictor.
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U281 D-COPY 3.1 - Powerful and professional disk duplication soffware with a similar performance as X-Copy Pro. software with a similar performance as X-Copy Pro
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U283 LOCKPICK V2 - Removes copy protection from roughly 450 commercial titles.
U290 CHARACTER GENERATOR - For Advanced
Dungeons \& Dragons players.
U291 RELOKICK v1.4 - New version of this A500-, A600 and A1200 downgrader to Kickstart 1.3 . Helps make many A500 only titles work on your machine,
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U293 PARBENCH - Link up two Amigas, or Amiga to CDTV
for communicutiong berween them or file transfers.
U294 POOLS TOOLS - Comprehensic Pools predictor. U297 LISTER 21 - Disk magazine creator.

## DEMOS

D148 STATE OF THE ART - By Space Balls-
-A1200 USERS, DISABLE CPU CACHES. D161 FAIRLIGHT 242-29 mcg of graphics crammed on a single disk. Stunning routines.
D159 LETHAL EXIT - AI 200 ONLY-
DI57 DESTINATION UNKNOWN - The best AGA vector demo yett -Al 200 ONLY-
M127/128 (2 DISKS) JESUS ON E'S - 27 minutes of Rave. -REQUIRES 2 DISK DRIVES
DI60 TECHNO TRACKS II - Rave demo from the United States. 4200 ONLY:
S93 REVELATIONS - Stunaing slideshow
S94 NIGEL MANSELL AGA SLIDESHOW - Nigel in his Formula One days. *A1200 ONLY.
S91 MANGA - Japanese cartion slidesbow
M139 CLASSIX 2 - Classical music from Bach, Handel and Pachelbel.
A151 THE LEMMING SHOW - Suaring Suicide man. Not for the squeamish. REQUIRES IS MEG-

## DI56 JETSET - Funky.

D153 RETINA - Flashy demo, -1200 ONL)
DI45 PIECE OF MIND - Star Trek spoof.
M134 RHAPSODY IN BLUE - Jazs.
M135/36 (2 DISKS) NUTCRACKER SUTTE - Makes a welcome change.
M130-134 (4 DISKS) A TO Z OF C64 TUNES - Hundrods of classic C64 tunes packed onto 4 disks, Great value.
M125 MUMBO JUMBO. Very lively


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## PROGRAMMING



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Independent lens flare control for every light on the scene

If you're relatively new to the Amiga, the importance of the Video Toaster and its accompanying suite of software can't be overstated. In short, the Video Toaster is the only thing that's kept the Amiga alive in the US for years.

Even more ironic than the prospect of a third party peripheral keeping a computer afloat is the fact that the software bundled with the Toaster is the only thing that's kept the card itself from a pedal bin already full of long forgotten third-party peripherals.
If you managed to follow any of the above the upshot is that without Lightwave the Amiga would probably have been crushed underfoot by the relentless onslaught of IBM in the American market long ago.

## NOT ALONE

Although Lightwave is not alone when it comes to Toaster software, it's widely regarded as the most important element of the entire hardware/software combination.

Due to the Toaster's strictly compositeonly output, the card itself has been rather superseded over recent years by dedicated broadcast systems when it comes to TV and satellite - although it is still the workhorse behind countless US cable stations providing character generation, digital video effects and of course Lightwave images

complete toaster systems have been bought purely as a means of accessing the potential of the package - as a result the Toaster itself probably qualifies as the world's most expensive dongle.

Although this may sound unbelievable it's worth bearing in mind the cost of alternative systems like the Silicon Graphics Indigo workstations. Although

> Paul Austin reveals another exclusive as LightRave finally brings arguably the Amiga's greatest ever ray tracer to Europe


Selecting individual elements within a huge model couldn't be simpler
號
truly impressive, the machines can cost up to $£ 35,000$ plus another $£ 40,000$ for the associated ray tracing and animation software - add an optional $£ 2,000$ a year for tech support and upgrades and you'll see why Lightwave remains so popular.

With the extra appeal of the software over its accompanying hardware, the question has to be: Why not buy a standalone version of Lightwave and leave the Toaster for those who specifically want its additional multimedia abilities.

Unfortunately as you've probably guessed the connection between the Toaster and Lightwave isn't simply a matter of loyalty. In fact Lightwave minus the Toaster equals no Lightwave whatsoever...

As a consequence that's why the ultimate in Amiga ray tracing has never appeared in Europe. Thanks to the enforced symbiosis it has remained strictly on the wrong side of the pond.
Due to the basic design of Lightwave it insists on the presence of a Toaster which is not only expensive but also impossible to use in a PAL environment up until recently. Why the authors of

Lightwave never released the package other boards is probably a matter of car tractual obligation rather than indifferent but whatever the reason the end resu remains the same.

What Europe needed was some way duping Lightwave into believing a Toaste was on-board, when in fact it wasn Enter LightRave, the dongle that does te impossible and brings Lightwave to to PAL Amiga without burning up extr cash on the somewhat mediocre an expensive talents of the PAL Toaster.

## GRATIFYING

Considering the asking price associate with the LightRave and Lightwave comb nation it's gratifying to know there's mor to it than just plugging the dongle into serial port.

Along with the aforementioned plast accessory - which for some bizarre rease smells of soap - you also receive a flopp which contains the LightRave control sol ware, an element which must be reside before you can enter the wonderful worl of Lightwave. In addition to the dong and animation.

Although the Toaster itself is no longer considered sufficient for broadcast applications Lightwave still provides rendering quality on a par with anything on the market.

A perfect illustration of this can be seen gracing our screens right now in the form of Babylon 5 and Sea Quest DSV - both of which make extensive use of Lightwave's incredible modelling power.

To put things into perspective Lightwave has proved so popular with professional broadcasters in the States that

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some way ing a Toas ct it wasn that does twave to ng up ex: ediocre at roaster. there's mo ngle into
ioned plas izarre reaso rive a flop: control se t be reside derful wor the dong

## 

 Disomania at its best - simply att bones and make him moveand its accompanying software the only ther essential is Workbench 2.04 or above -d at least 512 k or chip and fast RAM mpectively - although at least 3 Mb or nore is required to achieve any real funcsinality.
Thanks to the control software the outpat of the program isn't just destined for the hard disk - in fact thanks to LightRave, Lightwave is no longer limited to the composite only output offered by the Toaster as the program's output is now automatically redirected to the board - Amiga display of your choice.

In fact thanks to the intervention of the antrol software Lightwave will now renSer direct to the IV24, Retina, Opalvision, DCTV, Firecracker and EGS Spectrum in addition to standard and AGA Amiga Esplays.

Depending on your particular set-up pou can configure Lightwave's preview cutput medium of your choice, although for optimum speed it's also possible to firego the preview entirely in order to save a little more rendering time.
If the assorted graphic cards and Amiga modes are not enough LightRave also offers the option to render direct to GVP's ImageFX image processing software. This has two advantages. Firstly you can take advantage of any additional


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display devices supported either now or in the future by the software.

In addition the option also allows postprocessing of the 3D images even before the file is saved to disk. On the down-side, running Lightwave and ImageFX simultaneously will require a huge amount of free RAM which will no doubt negate its use for the vast majority.
In addition to simply slapping graphics onto the chosen device, the LightRave software also provides time-out control for the static image preview. Better still it's even possible to play back animation rendered directly from LightRave - a feature only previously available through the Toaster 4000 hardware.

At the moment anim 5 is the only anim format available but others are promised for the future. The animation itself can
appear as either Ham or Ham8 display or alternatively as a DCTV 3 or 4 bitplane image/anim.

With such a big build up, it's only fair to offer at least a whistle stop tour of what all the fuss is about. However as you can probably guess, Lightwave is simply too big a package to cover in just a couple of pages.

In addition $A C$ - unlike certain magazines - has a tradition of not only actual having a product before reviewing it, but also thoroughly testing it prior to offering a so-called exclusive.

With this in mind coverage of Lightwave will be carried onto next month in the form of a full and in-depth

## fantastic

look at the package. For now, however, we'll go on a brief guided tour and spotlight what makes the package so special.

Aside from the impressive features list which we'll look at in a moment one of the most notable aspects of the Lightwave and LightRave combination has to be the price tag which when both elements are combined add up to a rather terrifying amount. Obviously without proper testing it's inappropriate to talk about value for money - you'll have to wait for next month for that. However the price tag does at least point to the market the new duet will be targeting.

## SERIOUS

In fact, even to install Lighters and more importantly Lightwave you will either need to be very serious about your modelling and animation or have an almost unbelievable excess of disposable cash.

According to the LightRave manual the software and dongle require the complete installation of the entire Toaster software collection. OK, not an unreasonable request - until you realise that the collection comes on 45 disks which in total require 110 Mb of storage space.

If you're unfortunate enough to be installing on an A4000 all 46 disks are required where as only a measly 29 are essential for non-AGA machines.

Due to the rather annoying and archaic design of the Toaster installer you're only given the option to install all or nothing, a factor which is made even more infuriating when you realise that LightRave,

Lightwave and Modeler total to less than 1 Mb . In fact even if all the support files, objects and essential fonts are copied over you still only need about 7 Mb of hard disk space.
Over the next few weeks I'll try to unearth a more cost-effective method of installation by perhaps aborting installation after the essential Lightwave elements have been added.
Unfortunately even if it is possible to abort the install prematurely the installer interrogates your system before startingup and will refuse to install on anything less than an 80 Mb hard disk
Even if the correct size of disk is located you will be instructed to delete a predetermined number of files to make up the shortfall. As a result at the moment the only option is to back-up your entire hard disk, install the software, delete the necessary Toaster software and re-install you system.
In addition to the potential problem of acquiring the extra hard disk space the authors and creators of the LightRave dongle have also officially stated - again via the manual - that tech support and imminent free upgrades to the LightRave driver software will only be available to those who can prove ownership of a Toaster.

## UPGRADES

In order to do this the registration card has an area marked Video Toaster serial number. If you do not supply the number you also won't receive information on upgrades to LightRave dongle - which may occur due to upgrades to Lightwave or the Toaster itself.

Although this isn't the kind of news the European buying public are looking for it's probably a vain attempt on the part of LightRave's developers to appease the great god NewTek - who for obvious reasons won't be too pleased at the prospect of losing their prize milk-cow to an interloper.

In fact, so keen are Warm and Fuzzy Logic to avoid offence that one of the primary selling points of LightRave is to offer
additional freedom to existing Toaster users.

This indeed is one of the benefits of the LightRave system, however telling a customer that he or she can't have tech support and upgrades for something you've sold them simply because they don't own the very thing you've allowed them to avoid buying is the ultimate in hypocrisy.

And don't think the fault lies with Warm and Fuzzy Logic - it doesn't. The cause of all this confusion falls squarely at the feet of NewTek who through outright greed have forced would-be Lightwave users to such bizarre lengths.

Given the fact that NewTek must have made an ab-solute mint on the Toaster in recent years, why not release Lightwave under licence - for use with other boards? That way they still receive a handsome royalty and we the underprivileged Europeans would finally get the software we want - no strings attached.

Although the word Lightwave gives the impression of a single entity the package is in fact split into two distinct parts, namely Layout and Modeler - Uncle Sam's spelling, not ours.
On entering the software you arrive at the layout screen complete with its mandatory camera and Caligari style Cartesian plane, providing the essential feeling of perspective.

Again Caligari-esque double button mouse controls allow the viewer to zoom in and orientate the display, however this basic perspective view is only the beginning of the program's truly excellent interface.

As you can no doubt see from the screenshots, buttons are also available for the usual $X, Y$ and $Z$ views, but better still you can also view the scene from the camera's point of view or that of any lights which may have been add to the scene.
The beauty of the last two options is only really revealed when the chosen view is combined with the programs edit



Simple but effective, the LightRave
interface in all its glory


A simple frame from a
stunning demo animation
options. Again you'll see that the various View buttons are repeated in the edit section with the addition of bones and objects.

As a result you can for example select the view point of a light and also select the same light as the element to be edited. As a consequence, when you now orientate your new view the object mimics the chances in real-time allowing incredibly easy and accurate adjustment and alignment of the various elements.
If you're happy with the changes you simply click on create key and the alterations are recorded. Each element has its own set of keys which during animation are tweened automatically by the software using splines.
And joy of joys, each object also has its own motion graph to control speed along its individual path. In a rather dramatic and pleasant variation from the norm, characterisation of the various elements within a scene are handled during scene development, and as a result there's no need to jump between modeller and layout to adjust texture maps, backdrops and so on.
Moving on to the layout screen, where you're confronted with an imagine/Real Classic-style tri or quad view depending on your particular preference. In a slight break from tradition, the various edit controls on the left of the screen evolve according to choice of mode selected at the top.

As a result there're no tedious treks through pull-down menus to find the appropriate feature and perhaps more importantly screen refresh is kept to an absolute minimum.

When it comes to model design and handling, the format is very similar to

Imagine/Real Classic with the only murn exception being the ability to use multipe layers each of which can hold differe objects.

These layers can then be freel exchanged to update the screen with a new object and more importantly laym can interact to perform various merge an Boolean operations with one object beiry used as a cutting tool on another Although not essential, the optional qua view has a particularly nice touch in ter form of a fourth perspective view.

Unlike Imagine you're not forced use sliders to orientate the fourth window - in fact you can grab the object and manipulate the model in real-time, and $t$ that's not enough you can even choose $=$ have the object constantly swivel from lit to right to enhance the 3D effect.
As for tools and edit options, the avz able selection is nothing short of breats taking with seemingly everything tha magine 3.0 promise and seemingly al that Real3D v2 provides at present - with the only possible exceptions being colls sion detection and gravitational effects.

Although a rather sweeping statement considering my limited exposure to the package it only proves the infections enthusiasm that Lightwave generates.

## MASSIVE

It's by no means an accident that Lightwave has become massive righ: across the US and beyond. Although seneral years of ray tracing experience dra help, I've hardly ever needed to resort tr the manual for advice - even when exploring features that are totally new me.

During Amiga reviews, the phrase intuitive is used with gay abandon sometimes without cause. In the case ar Lightwave 3.0 the word couldn't be morer at home. Nine times out of ten using a new feature is simply a matter of picking the most obvious approach - and nine times out of ten you'll be right.

Like many Amiga enthusiasts I've become thoroughly sick of the sycophantic coverage that the Toaster and Lightwave have received over the years iz many European magazines - given the fact that none of them have ever ever seen it in action.

However after only a brief exposure $=$ this package I'm already hooked. Tune in next month for the in-depth review. By then my initial rush of enthusiasm should have worn off and we'll reveal if all of the expense and hassle is worth the effort.

Product: LightRave dongle and software driver
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EST 1991


Although the Jpeg file format has brought unrivalled image compression to the hard pressed Aniga, it's largely remained the domain of power users with the financial muscle to afford expensive Jpeg compatible software wh as ADPro , ImageFX and ImageMaster.

With the arrival of the AGA chipset the battle between space and quality did mprove, however even with the assistance af Hi-res interlaced Ham8's some quality is rell sacrificed for a space saving of roughly 3 per cent over the average IFF 24.
In addition to expense associated with lpeg, accessibility was and still remains a problem with the vast majority only excepting 24 -bit data in an IFF form.
Once again the need for expensive image processing software is reaffirmed with its inevitable demands on system resources and time - as each Jpeg is forced through the sometimes lengthy processing procedure every time an image was stored or Becompressed.

Thankfully Pegger should finally put both the financial and time constraints associated with Jpeg to the sword, thanks to a degree of automation which is unsurpassed by any other Amiga graphics utility.
Like the majority of recent releases, Workbench 2.0 or above is an essential for anyone planning to use Pegger. In addition at least 2 Mb of RAM are required, along with a hard disk.
The need for Workbench 2 is soon apparent on boot-up as the program leaps into action with three Appicons offering compression, decompression and the essential
snoop. For those unfamiliar with the term Applcon it simply means that the program waits in the background while a small window remains on the Workbench screen ready to be double clicked into life or fire up automatically as files are dropped over the icon.

Unfortunately the version on test did show the odd bug when it came to dumping files directly onto the icon, however a bug fix is promised prior to shipping in the UK.

Whether you prefer to double click or drop, the end result is much the same with the main program screen opening ready to accept various details concerning the name, format and placement of the file or files in question.

## DHRECTORIES

In the case of both compression and expansion, source and target directories are defined, a rename applied and the compression ratio or decompressed file format specified.

Although this sounds a lengthy process, 90 per cent of the information is added by a series of pop-up requesters necessitating simple point and click decision making.

Like most file intensive software, pattem matching is well supported in addition to fairly extensive ARexx support. As for the processing options, you're given the opportunity to process either individual preselected files or batch process complete directories - with the options to include sub directories.

Once defined, another click initiates processing with the end results being created in


Single files or batch processing couldn't be simpler
addition to the original file or as a direct replacement. Thankfully file replacement is far more subtle than simply loading converting and overwriting the original file within its parent directory.

In fact, Replace will even delete the original file while copying the newly compressed Jpeg into a completely different directory adding a new name or appenda in the process. In the case of compression this will obviously mean Jpeg files, however when it comes to decompression the end results can be either DCTV $3 / 4$ - with or without an optional filtering, IFF 24 s , Ham8s or the Video Toasters very own Framestore format.

Regardless of which direction the file is heading, the aforementioned pattern matching can be employed to filter the wheat from the chaff while optional smoothing can be applied to decompressed Jpegs if necessary.

Although both standalone elements offer relatively painless file processing, there's a distinct lack of automation as at least some input is still required from the user whether


ITRGE MITEES
CJPEG

D.JPEG
deliver

> Automatic Jpeg compression and expansion courtesy of Pegger. Paul Austin reveals the graphics utility no Amiga artist should be without

compression or decompacting is required.
Fortunately the third AppIcon in the Pegger collection provides the ability to assign automatic processing to specific directories. As a result any software can load Jpeg files regardless of whether the package supports the format.

Better still, the same software will now also have developed the ability to write Jpeg files. In truth the software is exactly as before, but thanks to Snoop set-up, Pegger will now keep a constant watch on a predefined compression directory.

## INTERCEPTED

As a result any IFF 24 s heading for this directory will be intercepted by Pegger and automatically compressed with to a predefined ratio and saved out with the appropriate file appenda.

As for decompression, the format is pretty similar, with Pegger jumping in to convert a Jpeg into any one of the formats mentioned above whenever a file is requested - regardless of which package is trying to load the file.

It's even possible to assign the automatic compression and decompression to the same directory. As a result programs like Imagine could save 24 bits to the directory - which would then be intercepted and converted to Jpegs - while DPaint could load the newly created Jpeg file, at which point Pegger would intercept once more transforming the Jpeg to a Ham8, DCTV or IFF 24.

Aside from a brief pause during the conversion process, Pegger's intervention is completely transparent. And courtesy of its fairly minimal system requirements it can be left in the background to convert the output of ray tracers and modellers automatically.

As for a final analysis, it's hard to complain about a unique package which offers a fast and reliable cure for the problem of 24-bit storage. Aside form the slight bug which is already under repair Pegger is the ideal utility for the Amiga's 24 -bit generation of artists and animators.

Product: Pegger
Supplier: Ramiga International Price: $\mathbf{2 7 5 . 9 5}$ Tel: 0782398840

Ease of use: 8 Implementation: 8 Value for money: 6

Overall: 7

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## Oంon



WHEN THE GOIWG GETS TOUGH THE GANGS HEAD FOR THE DANGEROUS Streets - the new breed of fightiwg game. with elght of the biggest AND BEST FIGHTERS FROM THE NEW YORX BRONX, 256 COLOURS WITH SUPER SMOOTH SCROLL, DANGEROUS STREETS IS THE GAME WHICH LEAVES OTHER BEAT EM UPS IW THE UNOERWORLD SHADOWS. DONT MISS IT:

JOYSTICK "THE BEST GAME IN THE WORLD"




Giege

## Keeping on top of the fast-moving Amiga games world

## Viva revolution!

create Virgin's Beneath a Steel Sky. Dave Gibbons of Watchmen and Batman vs Predator fame, and Revolution, the people behind the innovative lure of the Temptress, are the two talents concerned, and are jointly responsible for the world's first computer-based

It has taken the combined talents of a top comic book author and oward-winning artist, and a leading development team responsible for a revolutionary and critically acdaimed adventure, to animated comic book adventure.

Revolution have rewritten the virtual theatre engine used to drive Lure of the Temptress. As a result, Beneath a Steel Sky's interface is less


Dave Gibbons busy at work on Steel Sky artwork
menu driven and simplicity itself to use. Characters in the game have believable per sonalifies and react to events depending upon the situation.

With over 100 different locations, Steel Sky is more than twice the size of Lure of the Temptress. Dave Gibbons has provided the carefully crafted, digitised comic art which sets the game apart from ohher adventures.

His decades of experience in the comic book field have helped Revolution create a feel unlike any other adventure. Dave has also writ ten and illustrated a scene-selting comic book to accompany the package.
Dave commented on his link with Virgin's adventure: "I'm always interested in telling stories in words and pictures and Beneath a Steel Sky is like an interactive story with animated pictures. It seems to be a very logical evolution of storytelling."
Said Revolution Director Charles Cecil: "With Beneath a Steel Sky we spent a year designing it before any programming was done. During that year Dave Gibbons taught us a lot.
"We believed that combining our skills could produce something really special, something ground-breaking, and it has. Beneath a


Some of Dave's finished artwork

Steel Sky incorporates techniques and gone play design that no-one has done before. We's not trying to create reality. We're creating 5 style."

Beneath a Steel Sky is available now for al 1 Mb Amigas, although a special A1200 ve sion is also on the cards.

## Edutainment Express

Mindscape have just released a new Mario tifle on the Amiga. Mario is Missing combines the much-loved world of the Super Mario Bros |athough Amiga owners won't admit it) with essential educational principles.

Mindscope say that it's a truly interactive video game that enquiring young minds will just love! Yes, despite Mindscope's apparent lack of knowledge obout "kids" today, Mario is Missing is designed to help kids aged seven and upward to explore and understand world geography in a fresh, fun and fascinating woy.

The evil Bowser has kidnapped Mario and his lizardly henchmen are stealing the world's treasured artefocts. In their quest to rescue the stocky Itolian plumber, kids will travel the world, explore exotic locations, leorn to master maps, compass directions, follow routes and collect vital dues.
Mario is Missing contains a mogical mix of music, animation, 2 D and 3D grophics and a feast of interactive photos, facts, maps and dato. It provides an excellent introduction to the skills recommended within the National Curriculum for Geography.

You will need a minimum of 1 Mb to run Mario is Missing, itll cost you $£ 29.99$ and should be on the shop shelves now.

## Cutey cools out

Cool Spot is in town and according to Virgin he is the coolest, most controllable and slickest animated character ever seen on any computer or console system.

Cool Spol's friends have been caught and coged by a bod dude with a stupid haircut called, ahem Wild Wicked Wily Will. The red and round spot must of course rescue all his chums - cue a cutesy plafform romp.

The star of the show walks, runs, leaps, hangs loose, bounces, dimbs and still finds time to dust himself down, clean his shades and play with his yo-yo.

The uncool characters that attock Cool Spot on his travels are no less well drown and animated hermit crabs that go wild when they lose their shells and manic mice who chuck chalky cheese of the rotund plafform hero to mention just two.

The game features 11 stunning levels plus 6 bonus stoges set inside a big bottle of fizzy pop. The parallax scrolling scenery is so huge, smooth, detailed and colourful that your eyes will find it hard to believe that they haven't died and gone to heaven.

That's what Virgin reckon anyway, but find out for yourselves, as Cod Spot is out now.


OLYMPICS scacam

## Going for Gold

US Gold have beaten the industry's top players to win sole rights to produce and distribute worldwide the only official computer game for the 17th Olympic Winter Games Lillehammer 1994 in Norway.

The Birmingham-based firm, part of the CentreGold home entertainment empire, secured this - one of the industry's most sought after contracts - following the success of Olympic Gold, their official game of the Barcelona '92 Summer Olympics, which recently topped $£ 30$ million worth of soles.

The new game will be for up to four players and

will available in eight languages. It will show hal opening and closing ceremonies, authentic course anc venue design, three difficulty levels, Olympic/worc records, male/female opponents, map screens and animation sequences linking events.
Winter Games ' 94 will feature ten events including downhill, slalom, super slalom, biathlon, short trod super G, ski jump, bob sleigh and luge. The has a Christmas release date and is expected to be a he seller throughout 1994, mirroring the success of Olympic Gold.


Ocean are about to tee off with Ryder Cup Golf, the officially licensed game of one of the most famous tournaments on the golfing calendar.

The gameplay is fast and you must skilfully control your team of 12 players to ensure that you get your hands on the esteemed Ryder Cup.
Ryder Cup Golf brings you as close as you can get to the real thing without wearing a colourful jumper and getting very wet.
The Gourad graphics are supposed to be so real that you can almost smell the freshly mown grass and hear the rustle of branches in the wind
as your ball sweeps smoothly across the 3D
landscape.
Realism is ensured
using a sophisticated ball
control system which allows
pinpoint accuracy for every
swing. This doesn't mean that
play is easy and the three courses are packed full of bunkers and various other tough hazards.

Ryder Cup Golf will arrive on your shop shelves very soon and there will be A1200 and CD32 versions too.

Ho-ho-ho! More stuffin than your Christmas roast
REVIEWS O REVIEWS Q REVIEWS
Micro-Machines ............................................... 128
Simon puts on his Santa suit and goes Micro mini chasing in this table top race caper from Codemasters
Space Hulk $\qquad$
In space no one can hear you scream, well that's what they said in Alien... will the same be true of Electronic Arts sci-fi RPG conversion?

Stardust $\qquad$
No not Ziggy, it's an ali dancing, all singing new version of that arcade rock classic Asteroids
Combat Air Patrol $\qquad$
Jonathan gives his helmet a scrub with the old wire brush, jumps aboard his spangly jet and flies right into occupied territory
Wonderdog $\qquad$
Woof, bark, growl and pant. Jonathan gives old shep a bone of his own in Core Design's latest canine caper
Dreamlands. $\qquad$
Storm Master, Ishar and Transarctica have all been bundled together, and await you under a pine tree in your local games emporium
Overkill $\qquad$
More Mindscape mindless mayhem as defender gets the 90s treatment
Alfred Chicken $\qquad$
He's not the Christmas roast, and he certainly isn't a member of parliament, but he is the chicken whose kickin'
Cardiaxx $\qquad$
Sheer heart attack in another budget stocking filler from Team 17
CD32 Update $\qquad$ 148
What's fresh in the world of Commodore's new love child for the festive period
RECULARS O RECULARS O RECULARS
Drawing board: Zool 2 $\qquad$ .146
the ninja from the nth dimension's getting ready for his comeback, an this time he's got a chick
Cheat Mode: Ishar II - Messenger of Doom $\qquad$ .150
The first part of this complete guide to hacking and maiming your way around lands of old in the snow


ALIEN BREED 2 - NOW AVAILABLE


Race around the tablecloth, jump the waffle and be careful not to leave your skidmarks on mum's favourite piece of Cingham


Whe says Heinz Buildz Brits? Silly things just get in your way when you're racing
 nyone who watches their box to any great extent can't possibly help watching the adverts that accompany your dose of soaps.
Last Christmos one of the many toys to toke the Bitish public by storm were the Micro Mochines. This range of miniature vehicles were billed as detailed models of the genuine artide yet small enough to fit on your little finger.
These doys where there's any scope to market a product further, you can bet your bottom dollar that the companies responsible will. Guess what, this is precisely what happened with the Micro ronge.
They first appeared with jubilant applouse on formats like the Sega Mega Drive. Now after a long wait MM has decided to materialise on the Amigo.
Being a product originally designed for formats like the Mega Drive, Micro has a very console style to it. When you first glance at it, Micro Machines looks foirly poor in relation to what the Amigo is capable of.
However, just because the grophics are of a foirly simple nature it doesn't mean to soy that the game isn't highly playoble. This is definitely the case with this tifle. The sprites are smoll and the sound doesn't strectch the Amiga at all, but it is damn playoble.
Micro Machines is one of those games that really doesn't have much of a plot or much background; its heme is very simple.
So having to write about it is quite tough. 1 mean I could sum up the entire scenario in obout. five words. I's a racing game featuring the Micro

## It's been a storming success on just about every console format and now it's making its racing debut on an Amiga near you

Mochines (well OK, so it was eight words). But I can't do this becouse it would be a very blank page and yours truly would be back in the queve with he other millions!
All right, there is slighly more to it than has been mentioned thus far, so without any further digression lefs spitit out.
Micro Mochines puts you in the tiny driving seat of a wide variely of different miniature vehicles. These vary from power boats through to combot tanks, Formula One Grand Prix cars and helicopters.
Now straight away you're probably jumping to the same concusion most do, that this is nothing new; a race around the old tormac in cars and boats viewed from the top.
But this is where you're wrong beccuse the main novelly aspect to Micro Mochines are the trocks. Rather than your typical rood scenario, the courses are set over such things as breakfast lobles, battivbs, workbenches and porches.
Sounds odd but it works a treat. Irs really very entertaining having to guide your dune buggy around a trock composed of Rice Krispies, ovoiding the beans and trying your hardest not to skid off the toble clath into oblivion. In total there are 27 trocks and they're all made up of as silly things as the above.
As for as who you roce against on these cered
(surreal - get it Folks?? rocks, there's a full complement of cartoony style choraders to choose from. There are two ypes of races you can compete in. The first is a four competior first-around themack affair and the second is a two ployer heod-to-heod.
Obviously in both types of race you race against either computer opponents or a chum of your choice.
Really no amount of words will ever be able to justify Micro Machines - the proof is in the playing. ll's simple in design, simple in the graphic department, but highly playable and highly oddicive.

SIMON CLAYS

## VISION

AUDIO


DIFFICULTY -0の○○○○○○

## LASTABILITY जबGOGOGGGO

Micro Machines is one of the few console cross-overs
$\begin{aligned} & 0 \\ & 0\end{aligned} 1 / 0$
worth getting revved
up obout for the Amiga. Don't be tooied by its simple oppearance, if's really pretty good.

> Publisher > Codemasters Developer > In house

> Disks > 1
> Price > $\mathbf{\$ 2 5 . 9 9}$
> HD Install > N/A
> Size > $1 /$ meg

Row, row, row yer boats merrily down the bathtub.


[^5]Gentlemen, choose you rreapons...


Fun and frolics in the tub with Power Boats


Turbo Buggies are just the ticket for tough terrains like pencil cases


Skid off the track on the school desk in your sports car and it's hard lines


Helicopters are excellent for trimming your Mum's herbaceous borders


The Dune Buggy's are great when life's a beach

# (1) Y tiflis    

Campaign II heralds a new generation of War Simulations with more depth than ever before and fabulous real-time 3D action.

The depth to Campaign II is provided by the all new strategy. Expert Military consultant, Wilf Owen, from recent conflicts has brought his knowledge to bear on computer gaming with an end result that looks and feels more realistic than ever before. All aspects involved in the running of an army have been considered, so that now you can place yourself in command of either side, at any level in the chain of command. Over 130 templates of the most significant military forces from 56 different nations of the last $\mathbf{5 0}$ years have been included to gain an insight into real conflicts such as Korea, Vietnam and Operation Desert Storm.

The action takes the form of fast 3D graphics if you choose to enter the battlefield in one of the 152 types of military vehicles. APEs and Mobile Artillery, utilise weapons ranging from wire-guided missiles, rockets, homing missiles, and machine-guns supported by laser rangefinders to tracer rangefinders, night vision, and gun stabilizers.



- Campaign II has emerged as the most comprehensive simulation with new improved strategy, at any level in the Chain of Command (C.o.C.), closely resembling that of a real military situation.
- Hands-on action as you fly helicopters in air-to-ground or air-to-air attacks.
- Deploy the animated infantry during fierce battlefield action in a new improved 3D environment.
- Featuring all the modern weapons systems: guided missiles, rockets, homing missiles, laser rangefinders, gun stabilizers and night sights.




Since Space Hulk dritted its way into the Gamer igloo lit's grim this time of year up north), its received a fair amount of atten: fion.
As we crouched oround the fire the oher night discussing toctics, I drifted into a slumber and dreamed we were all space marines.
There we were, a lethal squad of terminotors aboard the Spoce Hulk, our mission to destroy the genesteolers before deodline.
Our mission briefing commenced, with a morale-boosting message from the emperor, Bloomers:
"Ater you've carried those boxes over to the silo, I'd like you to infiltrote the Spoce Hulk and ter minate the creaded enemy."

## BRIEFING

Silting there, quaking in my oversized Burtons spocessit, my expression drooped further as our squod leader continued his briefing.
"Right, we've got no choice, it's our job. Anyone who complains IIl personally toke out to the fighting tree and beat seven shades out of them, so no whinging, lef's get on with itt Any comments?
From the corner of the room a timid hand slowty broke the line of stooped heods. It was technical officer Colon, trembling as he spoke.

II think it would be a good idea if we were all a bit quiefer..." he stuttered, odjussing his fluorescent shoulder band.
Before anyone could comment he was floored,

## Gladiałors are you ready?



## Terminators

Ah oas all Marine Chopters hove Terminator suib Usucily old, they've been possed down the ages and ore covered in the scors of batile. Only the best marines are bestwed the honour of using the ormour.
Along with his honour comes extra troining and Iffective technology for battle. All suits contain Iffe support systems, bio-sconners, energy scanners, auto sensors and trageters.


## Genestealers

A harror of teth and claws, the G Intuccer is the perfect biological kiler. They know no fear and leel no remorse and heve one prime direcive; to mulliply and survive
one fotal blow from hard ex-con Dazza Biggs. I gulped hard and quickly started moving boxes with my Gamer colleogue Biff.
I don't recall how long we lumped parcels into the silo, but that's dreams for you. Time seemed an impossible quantity to measure, evenything became translucent and before I knew it we were assembled at the main entrance to the Hulk.

The hardest, finest set of marines this side of Macclesfield and me. I eyed them one by one, looking into the steely grit of their vacant pupils.
Squod leader Ste-Vee, a veleron with psychopathic tendencies. Big Ozzie, second in command, a huge beast of a man and not to be trifled with. Buthux, a brutal individual with masochistic tendencies towards the young or intirm.
Then came Dazza Biggs, wanted in four sepa-

rate star systems for felonies against the state. Next in line Choons Morse, who wears a sound system in battle and goes into a blood-letting trenzy to the sound of a bone-crunching piano line. Following him, A-Dum, whose voyeuristic desires had led him to take vid-shots of all the carnage friend or foe.

As Biff (who's by far the youngest) and myself took our places in line, we exchanged a nervous glance and waited.

## DARK RECESSES

The silence was obruply broken by the dulcel bark of Ste-Vee.
"Biff, Clays, lead the assoult!"
I swallowed hard and nervously cocked the firing pin on my Bolter. Its sound resonoted around the Hulk like the drop of the hangman's noose, cold and finol.
The doors of the hulk slid open and a cold wind blew at our visors. Simultoneously we both gulped, then stepped forword into the gloomy hall light, shoking. Seeing the fright in our petrified eyes the others loughed, and tounted us as we switched to rodio contoct only.
Amid the noise of the intercom abuse, the others fell back and we explored the dark recesses of the corridor. It smelled, the stench of death linger-
 and tearing with no remorse. We scream but if's to no avail.

A red hue deepens over my sleep and suddenly I'm drawn from Lady Morphine's world, slumped in front of a frosty monitor in the Gomer igloo.


Rising to my feet I'm suddenly filled with cez and the realisation that this dream has given ber 0 an introduction which both sets the scene o shows some of the atmosphere that Spoce H. generctes.
Bosed loosely on the role-ploying gome, SpaI Hulk is set in a future world, long after man = developed warp drive and explored the frontient the void.
The game gets is name from the batilegrous for all the missions, the Space Hulks. These flocil ghost ships are the result of cross currents in 2 warp drive which left them trapped.
These abandoned nightmares hove long be the bane of the Empire as hey have become breeding ground for the Genesteclers.
The first thing to soy obout Space Hulk is th irs a very indepth game. In the normol "eoger get into the action " fashion I jumped straight = one of the mission settings. Needesss to soy ect campcign losted about 15 seconds, with all fine the Terminators hoving eaten space vacuum a me storing blankly of the screen, listening to hounting looding tune.
Never has it been so imperative to sit do-
ate rovvol ond study it．In foot，in Sooce Hulk vere two to peruse and they＇re well worth a －theon．
Te game also contains an in－depth tutorial －wich comprehensively guides you through －apect of control and toctics．
lizicaly，it runs off two main screens，both of are occessed by your favourite pal the I－The moin screen contains 3 D windows of mer tem and an overhead scanner view．

## －＊ANGING CURSOR

There are five windows in all，the largest being in antrol one which normolly contains the char－ ery you wish to control．This isn＇t to say that con－ －int possible within the four smaler windows， ant that due to the size，control is easier to nque in the central one．
Movement and firing within the graphic win－ －is via a cursor which alters depending upon t perition within the window．At the edges of the madow it moves you in the relative direction to its pation and in a more central position it changes ea croshhair and fires your weapon．
Des to the nature of Spoce Hulk and the speed thich the Genestealers attack，a number of －segicol options have been implemented．
Cicking on the right mouse bution when the
noor is on the overhead scanner transfers you to
a control screen，where leam orders can be given． Here icons allow you to order your squad mem－ bers to move，open and close doors，and most importantly，put down fire．
Another feature is overwatch mode．This adds an extra dimension of intelligence to your team and should be treated as a default mode for moving．

For example，when one of your marines is fol－ lowing your orders and something attocks him，it would be quite natural for him to react－over－ watch implements this for you automatically．

Obviously with five or even ten marines at your disposal，planning and orders can take quite a while，so a freeze time focility is included．
Unfortunately for you，freeze time is limited so you can＇t take a light year deliberating over strate－ gy．However，the longer you play in real time，the quicker your freeze time builds up again．
Once you＇ve completed the tutorial，there are over 50 missions to pit your wits ogainst，including the ominous Deathwing campaign．

In the Deathwing campaign you can make the decision over which squad to take into battle and which type of weaponry you foncy kitting your Terminators out with．
There are 12 in total and they vary from the rockel－shelled Boler through to the highly effective Heavy Flamer．


Help！There＇s a Cenestealer trying to clip me helmet

Here＇s a set of

## well dodgy

 missions

Once you＇ve estoblished how to control Spoce Hulk，it becomes a fairly almospheric，addictive fite．All right，it drags most of is inspiration from Aliens，but ir＇s for you to decide wheher thot＇s a good thing or not．
Most of the Hulks are very similar in ssyle and the graphics aren＇t that well rendered．However， they＇re effective enough and coupled with the moody soundrack give enough of an overall effect．
The main problem with Space Hulk is that it redly is difificut．The Genesteolers move quicker than Sooty would do if Herry Corbett＇s hand was crogenically frozen．This mokes for long periods of depression and desperation，until you master how to defeot them effecivively．
For worse though is the amount of disk access－ ing you have to go through and the fact that the program isn＇t hard drive installable．
You might think I＇m being pedantic，but ofter the seventh mission failure it storts to grate a lititle． You＇ve spent a totol of 45 seconds geting annihi－ lated and 35 minutes disk swapping to the sound of somehting off Scooby Doo．
This aside though，once you＇ve mostered the controd youll really get into Spoce Hulk and find it oddictively challenging for a long while．

SIMON CLAYS

VISION जब＠＠＠＠＠

AUDIO GのGのGの＠OO

DIFFICULTY


LASTABILITY

Space Hulk might well be a remake of a tamous film about

## 85\％

 Aliens，but it doesnt stop it being a very difficult strategy－ cum－3D dungeon－esque tille with plenty of action and gripping play．
## Publisher＞Electronic Arts

Developer＞In house
Disks＞ 3
Price＞$\$ 34.99$
HD Install＞No
Size＞ 1 meg

## Those controls in full



Do you remember the early days of computer games? Do you remember a particular wire-framed arcade-cum-pub classic, Asteroids?
There won't be many who haven't seen some or other version of this landmark in the annals of solf ware history. I have vivid memories of entering my local tavern in an attempt to do battle with wireframed UFOs and the outlines of large chunks of rock.

This was no mean feat as to play my favourite stand-alone piece of high technology, I had to get pass the disconcerting eyes of the landlord.

The lengths to which this reviewer went to as a young man just to satiate his desire for electronic moyhem were quite disturbing.

Preparation would begin some five days before my sticky coinage got anywhere near the slot of the machine. The golden rule was to appear mature this was perfected by exercising a fight regime of not shoving.

No matter how much the scratching and itching persisted, shaving must be avoided. With this in mind, it was imperative to avoid the cat who would inevitably lick my bum-fluff off.

Preparation also involved stealing Dad's aftershove, saving school dinner money (expenses) and giving my boyish anatomy as much room as possible to keep my voice os low as was feasibly achievable - tight pants were definitely a no no.

Before all the planning felt in place, the big night would be upon me. Approaching the bar surreptitiously, with all the swagger and poise of someone at least 18 , I would order my pint of insipid bitter, then disappear off to the arcade mochine, not even touch the beer and regress to the mental age of a four year-old, blasting to my hear''s content.

But that was then and this is now, and the industry has come a long way. However, it seems that the Amiga is about to be pushed that litte bit further by Finnish programmers Bloochouse.

Published under the Doze umbrella, Stardust is a spectocular version of the old Asteroids theme. The basic object is to dear the screen of asteroids and enemies while collecting all the bonuses and power-ups.

While it's a very simple game in essence, there is a finy sub-plot. An evil professor has taken it upon himself to destroy the golaxy in its entirely and kidnop the beautiful princess Voi.

To this end he has cunningly dis guised his top agents as meteors which he's dispatched to go on the rampage.

You play the do-gooding chiselchinned hero in your big manly pointy spoce ship, whose task it is to blow everything to pieces.

OK, so there's the plot which really is purely inci-


If you're wondering where the spaceship is, it's under that grey blob which acts as your sheild


Oh dear, it's a death flying robot drone thingy. Nasty looking things, but wonderfully ray-traced!


By jabbing the spacebar during gameplay you can call up the weapons selection screen


Let's take a stroll down memory lane and look af this Swedish Asteroids clone which has received a complete lick of 90s paint
 them) have beodies (as we shall now call pushes the Amiga through new boundaries in graphical capobilities.

They've employed a roy tracing fechnique as


Hoving conquered the first six stages you foce the end-of-level guardian C

Log$0-5$ ...Bringing the best out of computing!

## Commodore \& Atari Controllers

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Classic arcade-style design

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Pinto
Miniature version of Quatro.
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## Combat Air Patrol



AR

## Psygnosis's new

 flight sim looks like their best product for a long while. Jonathan Maddock adjusts his flaps and takes a lookIYoo utter the word Psygnosis then you'll more often that not get someone soying "oh, that company from Liverpool who did lemmings: Lemmings is a classic piece of soffware, but unfortunately it has dwarfed Psygnosis as a company.
Over the years, Psygnosis have produced some of the best and most ground-breaking games you're ever likely to see. Shodow of the Beast, The Killing Game Show, Amour-Geddon, Lemmings, Hired Guns - the list is endless.
For a while though, everyhing went a bit ostroy with the reteases of Ork, teander, Cytron, Aquaventura, and Air Support. Every single one was a bit of a stinker and it boked as though the Psyggies were simply biding their time unitil the release of temmings 2 .
I am now proud to announce the re-lounch of Liverpoo's finest software house.
In production at the moment are Second Samurai, Microcosm and Amour-geddon 2. The first off the production line is Combat Air Patrol.

Shorp-eyed readers will nofice that we actually reviewed it almost seven manhts ago, but then it was struck by production problems and the game designers decided to make some improvements

Combat Air Patrol is now in the shops, so we felt it was only fair to re-review it for new readers and those who might have missed it first time around.
The game is a fight simulation occurately bosed around ihe F. 14 Tomcot and the F-18 Hornet, and to top it oll off it's set in the time of the Gulf Wor.
The primary obiective is the explusion of enemy forces from within the pre-invasion boundaries of Kumcit. This where the gome storts to mix reality with fantasy as you toke control of the coalition forces. Il's up to you just how imporinat any follow


## CRMS

busting to runway strafing to Scud stries Whichever you decide upon you can guarres that i's spocked full of action.
Once you've mastered the flying lecchiouer can start the full campoign which is what Conser Air Patrol is all aboul. The campaign section is $=$ 100 lengthy to go into major details obout, but 10 basically take over the role of Normes Schwartzhopf os well os flying your two planes battle. This section is terifiyingly redistic and $\alpha$ keep you going for months on end!
But the best part of the gome has to be try accual flight simulation where you get the chanaz: leap into a F-18 or F-14 and dectare war on the enemy.
As you enter the cockpit, you see the corts and instrument panels, the outside world, throg? the cockpit windows, and the HUD (Heod Display) upon which some flight and all contes information is displayed.
Beccuse there are two plones, you have to lect what they do. Both the Tomcat and the Hones shore a number of controls and instruments whis


Ooh! What a pretty helmet you're got

Normally it's the locker room, but here in the hangar's where the lads adjust their weaponery
up measures will be once the lroqis hove pulled out of Kuwait - if you manage to get that far!
You moy decide that the coolition forces should continue the retdiation up to the point where lroq itself is invaded and the fleeing forces "neutralised". It is entirely up to the individual.
Another objective in any re-invasion scenario would have to be Soddom Hussein himself and Combat Air Patrol indudes points where you might just have a chance to end his lite.
Belore you start the Gulf war campoign you must fomilarise yourself with the two planes you'l be using, depending upon which mission you happen to be llying.

This can be done in two woys. The first is to select a training mode, which allows novice and experienced pilots to tine-tune their skills in a large number of areas. Flight training and weopons troining against both air and ground lorgets are offered to test and proctise your skills in all areas of combat.
The second way is the single mission option which allows an individual plane ogainst a single selected torget. Both air and ground attocks are available alihough your role on a mission will depend on which type of mission you selected.

There are 13 missions to choose from to test cut your skills as a pilot. These range from train


No, it's not a weather map, it's a strategical view of the Culf war, have they changed it to conflict, or didid it happen at all?
ze essentiol for any aircroft. These instruments, ad as altimeters and speed indicators, may cevever be displayed in a slightly different aroer, offen using a variation upon a standard mitument.
I won't bore you will hundreds of fiddly little titils about the game, but will instead answer his sesfon: What makes Combat Air Patrol different nrd beter than all the oher llight sims available m he markel?
Well, for starters Combat Air Patrol doesn't dy or feel like another flight sim. Even after juss ze go it seems tresh, new and exciting and puts one others to shame.
There a many nice touches, such as the radio Sis ollows contact with the airbose and other fiendly units who keep you informed of compoign eents as they unfold. This is very well done and tighly realistic and il's all hanks to a few samples.
The graphics are particularly impressive with some brilliont views, such as the fly-post view tich lieerally tokes your breath oway every time fou tum it on.
The views are worth mentioning beccuse you zem to be able to look at your aircraft and others trom iust about any angle imaginoble.
The outside graphics ore perhops a bit sparse, bul suppose that's because they're fighting in the teser where only comels ond huts exist.
I personally think that some flight sims ore a bit


I wonder why it's called the combed view - is it because the pilot brushes it before he looks at it?


One of the many stunning-external shots - always a lot better than an internal view!
stufly and for too technical for their own good, but Combat Air Patrol has been a pleasant surprise.

The manual is nice and easy to read and comes complete with a sheet with numbered instructions on how to fight in the air, shoot things
on the ground and more importantly how to toke off! One of the most impressive factors has to be the speed and smoothness at which Combat Air Patrol runs. I ployed it on the A1200, but it was just as impressive on the A500. I couldn't find


Flight roster or our stewardess' address book, who knows?
faut with it, and as a reviewer it's not often that I find a "perfect" game. I could drone on and on lor hours about Combot Air Parrol, especially os I'm not normally the type of person to really be impressed by this sort of game, but suffice to soy that Combat Air Pared is a bit speciol, and flight fanatics should dheck it out immediately.
Psygnosis have started on the road to recovery and this is just the kind of game that will make the likes of MicroProse shake in their books.

JONATHAN MADDOCK

Float to earth precariously on techni-coloured bin lid

## It's plane to see...

## F-14 Tomcat

The Grumman $\mathrm{F}-14$, or Tomcat, was developed as a no-compromise multi-purpose fighter aircraft. During years of service throughout the world, it has become the backbone of the US Nory fighter copobility beccuse of its outstanding performance in all areas of oerial combat. \#is powered by two Generol Electric F110 engines which occelerate the aircraft up to a speed of $1,560 \mathrm{mph}$ (moch 2.3), making "stright-line' performance comparoble to any fighter aircraft in the world.


## 4 F-18 Hornet

The McDonnell Douglas/Northrop $\mathrm{F} / \mathrm{\sigma}-18$ Hornet (to give it its full fifte) was conceived to fulfil a multi-purpose attock/fighter role which could also meet US Nay specifications.
It utilises two General Electric specifications augmented turbofans which output $32,000 \mathrm{lbs} /$ /hruss offering maximum speed copobilifies of $1,200 \mathrm{mph}$ at difitude.
The large wing area, strenghened and widened fuselage lallowing for a larger fuel poyloadl and redesigned avionics poy tribute to the noval origins of the $\mathrm{F}-18$, meaning increased range and toke- off/landing capobilities.
It also allows the $F-18$ greater self-sufficiency in the field and abiliy 10 carry an extensive missile poyload.

## VISION

 GOOGGGGOGOAUDIO


DIFFICULTY

LASTABILITY
 Combat Air Patrol is the flight sim of the yeor and comes recommended for

tilight sim expert and beginner olike. Ifs last, fun and highly oddictive. A worthy Gomer Gold winner!

Publisher > Psygnosis
Developer > Maverick Simulations
Disks > 3
Price > $£$
HD Instail > Yes
Size > 1 meg

## Wonder Dag



Ey-up Chuck! WD practises a bit of rolling pin jumping on the second
level


A thumbs up and a wink from Mr Waggly
Ears as he defeats the end of Level one boss

Fancy getting beaten up by a cat! No wonder he's shocked!



Woof
crystal blue waters and this is where Wonder Dog must begin his basic troining. On this first level our doggy chum is plagued by all manner of dangerous creatures. Fluffy bunnies, swooping ducks, spiky hedgehogs and wily foxes are all out to stop him in his prime.

The pup with the flappy ears must collect as many of the bonuses and power-ups as possible in order to increase his score and more importantly gain extra lives.

On his "walkies" Wonder Dog will find various items that he can pick up. These include wings for energy, jewels that will give him extra points, bones (if he collects 100 he will gets an extra life), whirlwinds for shortterm invincibility and smileys which reveal hidden plafforms that lead to secret bonus levels.

Wonder Dog is a good little plafformer, but is by no means a classic. The graphics are magnificent, wonderfully drawn and well animated.

The mid and end-of-level bosses are massive and ogain hove been sketched to perfection.

The tunes are heavily loaded with a tremendous bit of bass playing and at no point do you feel like reaching for the volume switch to turn it down. Actual in-game sound effects are very sparse, but those which are in there are more than sufficent.

Wonder Dog is going to be one of those plafformers that will either interest or infuriate you. Some gamers might not like the control system because as times it's quite finicky and you seem to fall off platforms through no fault of your own. The controls for me though were just fine and simply added to the challenge of the game. Core's platformer is extremely hard and the later levels are not for the fainthearted or the beginner. Wonder Dog will last you quite a while, but it is not fan-
tastically different from ony other cutesy plat former.

So in the end, recommended for dedicated plafform followers only, which is a shame because this is the best looking plafformer I've played in ages.
Moybe with a bit of extra thought placed in the gameplay department it could've appeoled more, but it turns out nothing more than an average romp.

JONATHAN MADDOCK

VISION 0000000000

AUDIO GGGGGGGGO DIFFICULTY 0○○○○○○○○

LASTABILITY 0000@OOOO
Cute to look at it may be, but if playability isn) there

CROM then all the graphics in the world won't sove the day. One for the dedicated platiform treaks only, I think.
Publisher > Core Design Developer> in-house Disks > 2 Price > $\$ 25.99$ HD Install > N/A slize > 1 meg

# CHECK OUT THE LATEST C : 

This rally sim's so lifelike you can almost smell the high-octane fumes.
"We have lift off!" Just what you don't want to hear from your computer co-driver...
He's screaming pace notes above the shriek of the engine... you're pushing it to the edge in the final thrilling stages of the Network Q RAC Rally.
You're strapped into one of the five rally-bred supercars, speeding in the exact tracks of the '93 Rally leaders. Each car handles differently. Each tests your driving skills flat out.

You're picking up vital seconds when you hang a bend late, clip a bank and flip into a roll - damage your car and you dent your chances.
It's the sequel to the top-selling RAC Rally game. But the sound's even more deafening, the digitised video graphics even more in your face for an atmosphere that's totally turbo-charged.

Flying around the world's toughest rally course is one thing. Staying on earth is another.
WARNING: CRASH HELMETS NOT PROVIDED.


# Do you play full pricers all the time？Well，now you can just wash and go with this marvellous three－ in－one compilation bundle from Silmarils 


days ogo：Your gool is to loot and destroy the seven enemy cities and thus couse the foll of Stharkoanio，but the only snog is that your enemy is trying to do the

## some to you <br> Alhough

trateny anem on arcode and o he loth－the the empracis is on the later．The grophiss are odequate enough and the sound is recsonoble． If you tike this type of gome then I suppose you might hove alreedy bought it，but if you haven＇t then you＇ll be satisfied with it in the compilation
If you don＇t the this type of thing then there＇s no harm in chucking it stroight in the bin and concentroting on the other two for superior products．

## VISION AUDIO GGGGOOOOO <br> DIFFICULTY ○○○○○○○○○ <br> LASTABILITY ○○○○○○○○○ OVERALL <br> 65\％

## VISION GGGGGGGGQ

AUDIO जबGOGOGOO

DIFFICULTY

LASTABILITY GOGOOGGOOO OVERALI $60 \%$

## Ishar

Ishar is regarded by many as one of the finest RPGs you can buy for the Amiga and was given generous marks by various computer magazines．This Silmarils adven－ ture is heavily influenced by Dungeon Master，but that isn＇t such a bad thing．

The graphics are perhaps some of the finest seen in an RPG and really give the whole product a polished and professional feel．

The action centres around the exploits of a band of five brave and heroic adven－ turers as they try to kill a shady and pow－ erful figure colled Krough．

Krough，who has slowly grown rich
and powerful and built a temple（the Ishar） on the Kingdom＇s borders，threatens the world of Kendoria．The world has decided that you and your band of warriors should rightfully dispose of him．
Ishar－Legend of the Fortress boats over 100,000 locations and hundreds of enemies and charocters．The game uses a flexible，uncomplicated and user friendly control system which mokes it simple and fun to use．
This is a truly great adventure and one that any hall－decent RPG fan could not do without．It may look and play like Dungeon Master，but Ishar is territic in its

own right and is by for the best piece of software in this Dreamlands compilation． Ignore it at your peril！

## Transarctica

I＇s not every doy you get up out of bed and find that the planet Earth has been completely frozen owel Wcll，that is what hos hoppened in Trensarcico． The sun can no longer be seen and hos become a mystical heovenly body．

Aport from the re－emergence of the woolly mommoth，the only means of tronsport is the steam troin．The Viking Union hove complete control over the immense railwoy netwak and thus they monopolise all meons of tronsport， giving them unquestionoble outhority．
You ploy the part of Chef of the Ambivolents，a set of curious beings who seek out he old mydts of the sun．Your mission is to find a woy to restore the sun to the world．
The Viking Union is none too pleased about his foct beccuse if the sun reappears they Ill lose power and a whole lot of money to boot．The Ambivalents＇greatest victory to date is the thet of one of the Viking Union＇s greotest troins，the Tronsorctico．

To progress successtully you must build up the size and strength of the Iransarctico．Additional wagons can be bought and extra money can be goined by troding．You muss also avoid the botte troins of the Viking Union and other hazords such as wolves．
Tronsartica is really a troding game that contains only a smoll hint of arcode action．The grophics are excellent and the sound is odequate enough．I guess that if you like troding games then youll love Iransartica．It is well worth spending a few hours on and is a worthy indusion into this complation．

## VISION 0000000000 <br> AUDIO जबの日Gの○○○ <br> DIFFICULTY GGOGGOGOO <br> LASTABILITY जबの日の日○○○ Ovenul 83\％



Developer＞Silmorlls
Disks＞ 5
Pice $>529.99$
HD Instal｜＞N／A
size＞h meg


The return of the classic shoot－＇em－ up．Is that good or bad news？ Mindscape obviously think it＇s good because they＇ve just released one．．． OVIRTML


of Antimatter shield af your disposal．Wilting the spocebor will activate and deactivate the shield． With the shield on you will be completely invul－ neroble to alien attacks．
Once a planet has been cleared，you are ere－ seated with a mop of the solar system．By using the joystick you hove to guide the cursor to the next planet you want to conquer．You start the game with five ships and a small amount of shield．An extra ship and extra shield are． awarded every 25,000 points．
Thor＇s basically everything you need to know simply because Overkill is perhaps one of the most uncomplicated games you＇re ever likely to
mat et For the moment forget about the compori－
son to Defender and lev＇s concentrate on the most uncomplicated games you＇re ever likely to
meet．for the moment forget about the compori－
son to Defender and lev＇s concentrate on the most uncomplicated games you＇re ever likely to
meet．For the moment forget about the compori－
son to Defender and lev＇s concentrate on the ethel ga ne itself．
O．WII Bs an appropriate name for the game
bexurathan appropriate name for the game times hare are perhaps just too many to cope with
cope wing grip particularly impressive with diving gus nog around the screen in obun－ dance plus infare acre some psychedelic introduction sates to boot（yeah man）． The sound is plentiful with loons of swooshes，blains explosions and o couple of sound samples placed here and there．Ployctility wise you cant go for wrong with this intense shoot＇em－up and i＇s so addictive that it should hove a government health warning placed on it．

The only sight problem is the fact that it is a Defender clone and the people who like to keep on eye on those pennies might not want to splash out on it．
Overkill has great graphics， excellent sounds，a wealth of playability and a copious amount of addiction．What more do you wont from a piece of computer software？A highly recommended blast from the past updated for the 90.

## JONATHAN MADDOCK

VISION


AUDIO
 DIFFICULTY


LASTABILITY

$=$




















































0riginality．A word that doesn＇t get used very much when describing the state of today＇s computer games．In just one year you might What a handful of software that could call \＃faignol．
Aver from a selected few，almost every game Wis currently siting on the shop shaves can dens．
However，help is at hand in the form of sup－ port troops who are capable of blowing up the


The beginning of Overkill and your ship is dropped off by Space Astro－Taxis！



The solar system map where you get to choose which planet you want to conquer


The second level and you encounter some wiggly snake－type things















## crystals using

deadly Helium mines．
Once a crystal hat be destroyed，the trooper will await your retmon in order to be stocked with a new mine．To do titi，you must fy your spaceship ot the recipes he leaps in the air．
Once he has cough hold of your ship he will be restocked with a new Halicium mine and can continue his destruction run．All you hove to do is simply return him to the ground and the near． er a Trilithium cystol，the better！
The joystick controls your direction of flight and the fire button unleashes a variety of laser beams，all of which can be powered up，at the enemy．In addition，you have a limited amount


Alien beasties at 12 o＇clock！OK， Squadron Leader Squiffy Motpants here！ rIm going in for King and Country，see you back in Blights for tea and cakes！



> Skint? I bet you are, so why not take a peek at all these lafest budgets, rounded up and reviewed for your deliberation...

The ancient castle of Nottinghom has been token over by the evil Sherif. Higher toxes, harsh punishments and gold-hungry merchants are moking life hell for the local peasants. You must toke up the role Robin Hood, and recruit and direct your band of Meryy Men.
That's the low-down for this vastly underrated isometric odventure sriginally from Millennium. The game uses a unique real-time odven-

ture system which can all be controlled via the use of some icons and the mouse.
It is completely open-ended. You are free to do onything you like, wherever and whenever you want. If you're really lazy, you can simply do nothing, but hey thol's not really the point of the game, is it?
The other choracters all move

Small icons but great gameplay

## Robin Hood <br> Kixx XL • £12.99


about independently and have litte lives of their own. You can tolk to these other people or just listen in on corversations, thanks to the real speech interoction feacure.
I have olways liked Robin Hood and am surprised that many softwere beyers didn't actually redise how good it was. The graphics are small, but well defined. The sound is atmospheric with a few choice sound effects dropped in here and there.
The gameplay is is best feature, though, and you can spend many hours just exploring Robin Hood's world and having tun of the some time. If Robin Hood possed you by when it was releosed in 1991, don't let it pass you by in 1993, especially at this bargain of a price.


Nowodorys there isn't o doy thot goes by without the mention of - brond new all-singing, all-doncing modern hitech fighth sim. Dve to modem lechnology, wars are elmost ill fought vic computers, especially where planes ore concerned.
All you hove to do is get in your cockpit, toke off, press a tow buttons and Bob's your unde - you've blown up your enemy tor-


## Dogfighting

 like it used to be
## Knights of the Sky Kixx XL • £16.99

get from miles oway. It didn't used to be like that, though. In ye olden times pilots depended on their flying skills to stay alive, as is very well demonstrated in Knights of the Sky.
You get the chance to fly every major fighter that was used in WWI (over 20 , in fact). There were no radars or missiles in those doys; you were sat down in an old heap of a plane with a composs in one hand, the yoke in the other, your finger on the trigger and a pair of naff leather pants wrapped around your legs.
In Knights' you get the chance to play either the part of Tommy or Jerry. You can try your hand of one of the hundreds of missions available including ground support, bombing and escort duties, or you can take to the skies in a head-to-head

dogfight with an opposing "oce" pilot.
Grophically Knights' is fantostic, with 13 dazzling 30 perspecfives to choose from to watch your victory or failure in the air.
The gameplay is basic (as you'd might expect) but still retains a wonderful sense of playability and a freshness which mokes the so-colled modern flight sims look rather stole.

Flight fanatics looking for something different should seriously consider buying this brilliant sim.


## Links • Kixx XL • £16.99

Over the years there have been many golf games. Some have been very good while mort hove been bloody owlul. One thing you can soy about all of them is the standard of graphics has never been porticularly good. Our PC--wning chums have had it good on that front with realistic digitised groptics and suund.
Links on the Amiga, just like is PC counterpart, contains some stunning graphics with actuol digitised trees and buildings and an incredible 3D contoured terrain.
The gome designers have tried to make it the most realistic galf game ever. Accurate physics of fight and impoct of the golf ball have been included into the progrom. You can odjust the golfer's stonce, swing plane and just about everyhing down to the colour of your tee.
That oll sounds well and good, but unfortunateIf $i$ is is iust 100 realistic and this mokes the gomeplay rather dire. The graphics, because they ore digitised, toke oges to update and this just creates boredom. I could recommend this to the dedicated golf fan, but everyone else should stay well cleor.



Very realistic, but at the expense of speed

What can you say, we've had them all! Ninia ants from another dimension, frogs with superhero-coped powers, fish that ore secret agents and now a bloody chicken. Life in the ever-surreal computer industry gets stranger sill.
It's got to the stoge now where this reviewer is no longer surpised when the nutter sits nexx to him on the bus asking if you've seen his comel, beccuse you probably have. You just nod and exclaim "donkef', wihhout so much as a shrug of the shoulders.
What some would describe as hallucinations are possed off os nommal day-to-day occurrences. A six foot squirrel? No worries. A cocodile in a morming suil? Doesp't roise a second glance. But a chick en colled Alfred who enters a by-dection?
Why is it colled Alfred? To me that seems on odd name for a chicken. Never mind the fact that this chicken hod politicol aspirations - why Alfred? Chickens ore colled Clucky or Chucky not Alf.
At the end of the day however, if we spent al day pondering over such dilemmos then nothing would get done and we'd all end up with fried brains, so without further ado lef's get into the plot.
The plot's pretty simple. The Meka-Chickens hove whisked off with Billy Egg and his brothers. The sole purpose of heir fiendish egg-napping is to carry out their devilish cloning experiment.

## FEATHERED FRIEND

Only one man - well, chicken - can sove the eggs, and that's All. As the only feathered triend with a bionic beok, Alf has to battle through 11 lerels of plaftoming moyhem.
As Alf pecks his way through the various levels he is rewarded for his travery. For instance, releasing all the boalloons on each level tokes the feathered one to M. Pedke's spoce lab where he is given extro points.

Also, if Alred keeps a beady eye out and col. lects a hundred of the many bonuses which lie around, Mr Pekle rewards him with an extralife.
Not only does the tandoorid one have bonuses to aid him, there are a series of devices to give him a hand. Springs, for exomple, propel Alf to a higher part of the stoge - when he uses

## Wishin' I was clucky




The Meka-Chickens steal the eggs in UFO egg-sclusive access other parts of the level, and ice blocks which can be pecked for similar outcomes. Unfortunotely for Alfred, there are also quite a selection of enemies within the employ of the Meka-Chickens and most of them are pretly nosty. These incude underwader whales, a Jack-in-


Fresh from the vaults of total play-ability comes this unique reprise of the classic shoot 'em up. Featuring the fastest scrolling and most detailed graphics that the Amiga has ever seen, pit your wits and reflexes against fleets of Leviathan spaceships as your Manta swoops low and leaves a trail of mayhem in its wake.

"It's absolutely stunning with superb graphics, marvellous effects and simple-as-pie gameplay." Amiga Action.
"Uridium II is fantastic. You can take our word for it... Smashing"

## Cardiaxx



Yee can tell K H's goleg to be cee of these cllen shook-cerep frimey deyse when tho shy' is thls gevy

As marketing strategies go, Team 17 seem to have the gaming industry sussed - toke all your old products and, after listening to the criticism of the reviewers and gaming public, revamp them and toss them out at silly prices.

If you examine the budget charts of recent months, you'll see a whole stream of Team 17 product: an enhanced version of Project - , Alien Breed Special Edition and a remixed Assassin hove oll sold in boxloods.
They've also found tremendous success with their selection of recent cheop priced new releases like F-17 Challenge and Qwok. Both of these products fectured smart ploy at less than half the price of oher softwore companies.

This is as neat a juncture as is necessary to meet their latest product to receive the Team 17 energy injection.

Cardioxx was originally released by Electronic Zoo some time ago, receiving mixed reviews and featuring little in the way of true game oction. The boys from Wokefield saw potential and have given it the treatment.
Cardioxx is a no nonsense blaster set strangely enough in spoce in the future. Taking on the role of Pope (a hardened Hon Solo type astro-jock), you blast off from the surfoce of the planet surface to toke on the might of on alien fleet. The scales are tipped heavily out of your favour, but if anyone can perform mirades then ir's you - or so the manual would have you believe.

After a short intro sequence, ir's straight into the oction. Cardiaxx is an horizontal bi-directional scroller that moves of a foir old rate of


## Conral, these <br> bloedy werla got <br> Into ewery orince



## ...no holds barred blasting as Team 17 revamp to good effect

knots - 50 Hz to be technically correct.
You respond to the enemy via your on board droid who passes on audio messages informing you where the exactly the foe are. There's also a nice lifite graphical arrow which points you in the right direction in cose you're like me and can't tell your right from your lef.

Once you're in the thick of it, not only do you hove to use your skill to knock those nosty, bully "gang up on one little spoce ship would you" aliens, but it's all against the clock.

If you toke too long over the task in hand i's's curtains for you and your ship is destroyed.

Unlike many space shoot-'em-ups where your ship con absorb only one enemy shot or be involved in one collision, Cardiaxx


Yes, I know if's pensed. Thers became I pressed $P$
is mode of sterner stuff.
Alhough your spaceship has a finite amount of energy, you can take a number of hits, the damage being reflected by on ever-diminishing energy bar.

Once you've seen off various types of centipede and other suchlike aliens, there's a minx of a level guardian to contend with.

Also ot the end of each level there's a special Deep-Spoce bonus zone where the aim is to eradicate as many of the pesky vermin as possible in a given time.
Your ship also has the obility to have its weapon system upgraded,
"(chimive way

And the fins sheut "You enly panse whllo youtre whring", The sege of the pasese liekten conthues, bet remember kith, keep your paws off
which is quite useful, as many of the nasties require special hits or large scale damage.

## Along with the power

ups, there'are also bonuses in
the shope of extra time which prove very hondy = time is extremely tight throughout. On the whtr Cardiaxx isn't a bad update into the ninelis although it's not the best thing to come out of the stable. The graphics are presentable and prind smooth, but they're never going to make you dar: over your monitor like Project-X did.

However, for the budget price of a tod under tenner I don't think anyone's got any grounds $:$ complaint. Cardiaxx plays fairly well and calt never be described as a slow poced affair.

In foct, if there's one slight criticism ir's a litile tr fast and the control never enables you to renle your ship motionless. Atempling to slow results int inverting to travel in the opposite direction, wiol can be quite annoying until you master your stil control.

Cardiaxx reminds me very much of the shoar-'em-ups from the eighties; straightforward, no hatly barred blasting with few complications and sthere gies. Though it's not their best effort of late, for : tenner it's got to be worth it.

SIMON CLAY


 beldy med the row Intricis necon paree cher | VISION |
| :---: |
| GGGGGGGO |
| AUDIO |
| GGGGGGGO |
| DIFFICULTY |
| GGGGGGGG |
| LASTABILITY |
| GGGGGGGO | Cardiaxx is nothing new, but it never stood up

 and said it was.
Very straightforward blasting mayhem frenzy and a decent cheapy to add to your shoot -'em-ups handy when life becomes a drag and you're feeling psychotic.

Publisher > Team 17 Developer > Team 17

Disks > 1
Price > $\$ 9.99$
HD Install > N/A
Size > 1 meg

## TURRICAN 3 WILL TAKE YOU ON A JOURNEY THROUGH THE MOST DEMANDING LEVELS OF ADRENALIN-GHARGED ACIION EVER SEEN ON THE AMICA.

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FOR ALL AMICAS (inc 512K), SOON FOR AMIGA CD ${ }^{32}$

Zool is perhaps one of the best platiorm charocters that home computer gamers hove seen for many a year. Just like Nintendo hos Mario and Sega have Sonic, Zool has become the standard icon for the Amiga.

Zool arrived at just about the right time. Platiormers were slowly losing their appeal and people were geting tired of cutesy game after cutesy game. The ont in the black silk pyiamas then exploded onto the scene and changed everything for the better.

OK , so the game was hyped to oblivion and looking bock it was perhaps a fairly bog-standard platformer, but it contained an copious amount of style and appecl of which the games buying public had not seen since the release of Rainbow lslands.

The ninja from the nth dimension has become increasingly more popular and the question of a sequel has never been in doubt. Having completed his journey through the six levels in the originol, Zod has to trovel through a further massive nine levels.

These include Swan Lake, Bulberry Hill, Tooting Common, Mount kes, Snoking Poss and more. All of the levess ore going to be much larger and wil feature a number of different woys of completion.

The general feel of the gameplay is very similar to the first incarnation, but the time limits have been made even tighter so that ployers won't hove time to dowdle.

There will clso be mega bonus items in some of the harder-to-reach areas of each level, these being worth moybe 20 limes as much os a normal collectoble ond will be a genuine reward for the players who hove skilfully negotiated the various horards put in their woy.

The enemies are once more related to the parficular worlds they live fin. for example, Swan lake has a myriod of bird-tike


critters, all intent on your swith demise. This time, however, some of the enemies will need more than one hil. For example o puny sporrow on the Swan lake level moy only need to be zapped

## Drawingboaral

## He's back! The ant-like hero who adorned many

 Amigas last year has returned and this time he's brought his woman and dog with him. Jonathan Maddock takes a second look at the alien with aftitude
once, but a manic eagle moy need three or four strikes.
The level guartion will always be Zocl's orch: enemy. Mental Block, and hell appeor of the end of the fincl laed in each world. Stating off in his normol cube-like state, he 'll tronsform into a
deody killing mochine that has some relevare to the leve.
One such trensformation sees Mental Plot toke the shope of a stote-of theart jet figherer Swon Ioke World, whereby he showers Zool i:s deody hurl of missies and bullets. Many ncir



## D/Generation • Mindscape • $£ 25.99$

## About a year or so ago, D/Generation hit your Amiga with a

 pumbe come blaster thud. Well, now the plozzta (new word for puale come action concept - like it?) is bock with enhanced celaur and chunkier sound.You play the port of a postman come delivery boy, who hos the gross miffortune of handling a pockage for a certain Mr Derrida.
Now, Mr Dertida is a top boffin working for Genoq, an argonisction speciatingig in artificl Neogen organisms geneticolly engineered fitarms.
Unfortunatly for some unknown reason the Neogen lifeforms have gone hoy
wire and are destroving ofltife withwire and are destroying oll fie within the boviding.
Irs at this point that you enter the scenario. After a long fet pock journey ocross finland, the Urals and the entire lengh of Asio you arive on the top of the office complex in Singapore - you've gof a bloody good rood map.
landing on the roof of the building, you are surprised to find that nobody from the company is there to greet you. Enter the building your concern pens and you find the s. ontst cowering behind her desk.
She tais you that the pockoge you've been carrying is of srove importance to Derrida and that it could be of grave importance to the whole of mankind's future - pretty important
job on delivery boy's woges.
The main reason for this is the $\mathrm{D} /$ Generation. The $\mathrm{A}, \mathrm{B}$, and C generations are far simpler Neogens. However, the D/Generation project is an extremely advanced form of artif:cial life. IV's copoble of disguising iself os anywing and has a hard dermal loyer which renders it proctically indestructible. Beginning with five lives irs your humble tosk to work your way from the 80 h level up to floor 90 , where Derrida is wait ing. On your travels you encounter various forms of the generation which go together with such things as security doors to compose the puzzle aspect. En route to find the professor you also find frightened employees who you must attempt to rescue. $\mathrm{D} /$ Generation is a large and interesting tife. The puzzles have a good mix to them so $\leq$ hat you never become bored and beccuse the - logic involves using a
loser, itll keep kill frenzy Iogic inll keep kil frenzy En hoppy to.
entiancen for as os the CD32
rophemed more darily and looks brighter.

## Overall: 82\%

 The sound dafinitly benefits from compact disc qualilyand gives the whole scenario a real mood.
D/Generation doesn' push the borriers of the CD32 that for, but of the end of the day it's a foirty polis hed playable product


Our hero gets frazzied while yet another employee sits down on the job
.


## Oscar • Flair Software


acter definitely folls under the category of cutesy, dithougt defining which area of the animal kingdom he hails from is beyond me. He resembles a chipmunk with bits of human is him.

Anywoy, whatever Oscar is or isn't, he loves the cin
Any. The show starts on one particuls


Oscar dons his
Noel Edmonds outfit in this gameshow "gotcha" stage

Let's have a sheeny shiney, digital see your face in it's reflection look at e couple of new releases for the CD32
which comprise of three stoges, is for Once he has completed this mission ond caliected the se: cial letters which are scattered around he can moet on ts the bonus/bogus levels.
There are loods of nosties and power ups which addt the fun and frolics. In many respects, Oscar has all the clossic features of your plafformer, but for one exception it's better, both in graphics and playability, than the like of Mario and Sonic could ever dream of becoming.
I could go on and on about the graphics, the samples and the sound in general. My advice to you is to go out and buy it. It looks and plays beautfully.


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Return to the villoge, hand the necklace to the chief. Recover the boal. Fot, sleep, buy arrows arms and food. Go to the harbour, select the town landing-stage.

## Zach's Island

Go right through the town to the library at the extreme north east. Pick up the fortress parchment. Kill as many enemies as possible fo gain money and experience).

Buy arms, helmets and food. Recruit if necessary, easi and sleep to recover physical strength, then return to the harbour in the direction of the forress.

## Akeer's Island

the wall on the right trying to keep moving east all the time. Fight the skeletons. There's a passoge to the south - here you should pick up the treosure in
the cul-de-sac and the south end and the skull in the cul-de-sac to the east.

Leave the passage again, continue east, then south. You'll come to a large room. Take the extreme $S E$, then $S, E$, and follow the corridor to the north to activate two handles - one on the righthand wall, one on the left.

Continue due north into the passage, follow the corridor into the large room. Activate the handle on the wall to the north. Leave the passage again, take the extreme SE, follow the corridor and pick up a skull in the cul-de-sac. Re-enter the corridor with the handles. Walk round the W wall.

On the other side, enter the room, and pick up the treasure, skull and arms. Return to the landingstoge. Retum to the town.

## Zach's Island

Buy fighting gear, arrows and as much food as possible, because big fights are coming. Buy two monk's habits and five fur coats from the clothes shop Inot far from the harbour, in a road leading to a little square to the north).
Go to the library. Examine a parchment on potions. Go to the bank (W of the library), enter the street with guards. You must kill all the guards in one go (you can't make a return trip), using arrows and spells. Take the door opposite. Pick up 100,000 po. Deposit 10,000 po in the bank (on the other side).
Go shopping. Buy a magpie, a monkey, an eagle and a parrot from the pet shop lextreme SE of the town). Opposite is a super-armourer;
depending on your budget, buy arms, helmets anc shields. Go down to the south, affer the bend. Bey five ropes from the shopkeeper.
Move W, buy potions for the "troublesone priest" (Humbolg) and "Ent Reviver" (Jablou) Continue to the W, and you'll come to three crou roads. $G_{0} \mathrm{~N}$, then W , then first $E$. Kill the giont guard (he's difficult to get rid of). If necesson regain strength because there are more fights $=$ come.
Enter the Blue Velvet night-club (only open a night). You'll get thrown in prison. Releose te magpie through the bars. Pick up the key. Oper the cell. Put on the five monk's habits. In te en en forress take the passage lopen between midnigrt and 4 am ).

Pass the monk. Enler the socritice. Recover fe prison key from the monk's belt. Leave the passmp


again. Find the invisible wall and cross it (where one of the charocters notices a draught). Leave the prison. Fight the guards. Retum to the harbour. You will need at least 10,000 po and an iron shield. toke the boat for the island where you started.

## Irvan's Island

Go extreme E. Follow the E coast. Find a magician, Give him 10,000 po, then send out the eagle. Pick up the mountoin parchment.
Return extreme W, along the coast. Find the stonding stones, continue to the W end. Pick up the relic at the foot of the standing stone. Golem wakes up. Kill him (most spells won't work on him). Turn round and fight Golem a second time.

Return to the harbour. In the direction of the mountains, take the landing-stoge to the S .

## Jon's Island

In the mountains you must put on the fur coats foke off armour) and attoch the ropes to avoid falling. Move E. Pick up the couldron in the snow. Set off ogain in the opposite direction following the mountoin rood along the precipice. Go into the mountoins. Find a minoceros. Kill it and take its horn.
Return to the landing-stage. Select mountains, landing-stoge to NW . If necessary, make a return trip to the town for "repairs"

On leaving the harbour, travel E. Follow the coast, then take the passage to the W. Fight the two giants. Pick up the living sword in a mountain hollow. Leave the passage again.

Continue northwards. At the end, find a priest in
a cul-de-sac. Prepare the Humbolg potion and give it to him. Pick up the tree island parchment.

Return to the harbour. Select the tree island. If necessary, make a return trip to the town for "repairs".

## Thorm's Island

Put on the pendant recovered from the dead woman. Take the crossroods to the left, then to the N , and second on the right. At the end, find an ent. Prepare the "Jablov" potion and give it him to drink; pick up the pendant.
Visit the huts; two open huts give various information. Return to the harbour, take the extreme E . Fights with Ewoks. At the end, pick up the relic. Retum towards the harbour. Toke N-E-N-E, follow the rood: at the end is the iron shield. Pick up the magic shield (protects against fire).
Turn round. At the crossing, go $N$ then $E$ and first $N$. Fight with trails and oggressive eagles, to arrive close to the dead woman at the end to the W. Collect the key to the town hall from around her neck. Relum to the harbour. Hurry.

## Zach's Island

Go to the town hall (extreme $N \cdot W$ ). Enter the town hall and pick up the idol. Go to the temple (W of the bank) and give the idol bock to the monk. Pick up the Air Elemental pendant.
Go on to the bank and draw out money. Buy arms and food. Eat and sleep... Keep $7,100 \mathrm{po}$, then return to the harbour. Go to the forress.




## Akeer's Island

Follow the lefthand wall, alwoys moving N as far as the passage. In the circular corridor, take the invisible wall to the N . Follow the corridors to the N until you leave the calocombs. Find three weighing scales. Put exactly 3,550 po on the first two scales. Return to the catocombs. The water should have disappeared. Take the second to the SE. At the end, follow the small underground passage.
In the large room, activate the handle at the SE end. Take the treasure at the NWW end. Put on the Air Elemenctal pendant. Continue to the NE end. Tcke the first turning to the right. Fights with mummies (fire-cloud and lightning are effective). At the very end, to the S, pick up a skull.

Return to the N . Take the occess to the E. Stop in front of the wall, toke the invisible wall to the S : pick up treasure and skull. Return to your initial position in front of the wall. Cross the invisible wolls, still moving E. If blacked, toke a side step to the S then continue E. Enter the prisons (you can find oher reasures if you pass other invisible walls at the end of the maze).

Follow the corridor to the E, kill the lion-guard. At the eastern end, click the prison key in the lock. All the cells will open. Turn round. In the first cell to the right you can find treasures behind an invistble woll.

In one of the cells is a blind girl. You must recruit her, so you must dismiss one of the characters (archer or worrior). In the second cell to the S, storting from the W, is a secret passage through an invisible wall.
Follow the cornidor and enter a vast room. Beware, his area is cursed; some charocters will be inverted. To un-invert them you hove to cast the curse-lifing spell.

Go to the middle of the columns and pick up the living sword. From the centre make return trips to the N , then S , then W. At the end you will find either invisible walls with treasures or a secret possoge (click on the plate in the middlle) with a handle to be activated.
Lastly, take the possage to the SE (beware of the hooks in the ceiling), pass the door, follow the corridor to the S. In front of the grille, release the monkey: open the passoge. Reach the landing; stage. Select the entrance to the fortress again.



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his is the Christmas issue, and no doubt, as in Christmases past, many new Amiga owners will join the fold. Since it is now almost impossible to obtain an Amiga without hearing sometbing about ARexx (unless the only thing you do with your machine is play games), I will take this opportunity to present a general overview of the language, its history and its basic principles.

Obviously, in a small space like this, I cannot hope to convey more than an impression of the language, and newcomers wanting a more detailed overview should obtain an introductory book on ARexx, such as the one reviewed below.
Several aspects of ARexx have also been discussed in these pages over the last two years, and the editor has even threatened to put them all on a CoverDisk, so if you think this would be of help, why not write in and tell him?

First, a bit of history. The earliest form of ARexx was a language called Rexx. It first appeared in 1983, created by IBM's Mike Cowlinshaw. Its purpose was to provide a good general-purpose utility language for IBM's systems.

Rexx was not originally designed to run on micros, but on large mainframe machines. Its design criteria were simplicity, practicality and usability.

Rexx did indeed turn out to be very simple and intuitive to use, despite its power and versatility. Its commands were English-like, and its overall "feel" was even easier to master than Basic It was also very good at han-


Enter filename for save: df1:bbb
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dling data, especially data in text form. Rexx, incidentally, stands for Restructured EXtended eXecutor - just in case you wondered! This mouthful simply means that it is an executor (a control language), it is extended (has many new features), and it has been redesigned for better program structure.

This was in relation to Rexx's predecessors, among them a simple language called Exec, which, of course, should not be confused with the Amiga's "Exec" kernel.

Now, quite a few programmers took to Rexx, won over by its ability to make tricky and tedious jobs easy, and it became popular on many platforms. Yet all this was happening in the world of large machines and their arcane operating systems, and was of little, if any, relevance to the world of personal computing.

However, the popularity of Rexx would not let it stay confined to its birthplace, and eventually a few versions started to appear for the MS-DOS platform.

One of them, Personal Rexx, managed to attract a fair following, but even so, it was hardly a mainstream language; more of a little gem for those "in the know".

Personal Rexx also provided an interface through which external applications could use the Rexx language as if it was their own.

This was probably the dawn of automation interfaces in the ARexx style. It meant that software applications could now share a common, powerful script language, and no longer had to supply their own, often inferior versions.

It also meant that software designers no longer had to reinvent the wheel each time they needed a script language for an application, and users didn't need to learn a different language for every different program they used.

LESS EXPERIENCED
To get back to ARexx: I often cannot help feeling that one of the reasons that it still spooks less experienced users, is that it does so much.

After all it does four separate jobs, any one of which would be enough to rate it as a super-useful tool. ARexx does the jobs of a DOS enhancer, a typeless freeform utility language, a script language for applications and an interprocess communications system, all of which will now be examined in greater detail.

However, the first appearance of Rexx on a mulitasking micro was due to a programmer called Bill Hawes, who had the foresight to see how well the Amiga and this new language could integrate.
His implementation of ARexx on the Amiga, appearing in 1987, won a good following, especially among more serious programmers whe appreciated its chore lightening effects.
However, it was still some time before Commodore acknowl-

Bill's vision
gdged the value of this contributon, and included ARexx in the Workbench 2.0 operating system. By then, enough software vendors had seen the advantages of ARexx to ensure that most major Amiga products had an ARexx thterface.
In the meantime, IBM had not failed to notice the potential of Fexx either. Its popularity on the
big machines led them to incorporate it into their OS/2 microcomputer operating system.
This is significant because OS/2 is a true multitasking system. Ilke the Amiga's, and is in many ways superior to the hugely popular but awkward Windows.
In a sense, this justified Bill Hawes' vision of the language's potential. As OS/2 gains popularity, the Rexx family of languages could become quite important in the personal computing scene.


Not only is it possible to call the system file and font requesters from ARexx, but you can also create your own custom gadgets

# your language 

Firstly, ARexx's job as a DOS enhancer. Have you ever needed an AmigaDOS command to do a special job, but all you could find was a very rough equivalent that didn't really meet your requirements?
Perhaps it didn't have the options you wanted, or only did half the things you needed? Maybe you tried to write an AmigaDOS batch file to automate a task, but tumed grey trying to figure out the weird control structures? Did you wish there was a simpler way?

There is, and it is called ARexx! Because it can work together with AmigaDOS, it's easy to devise custom commands, based on existing ones. You do not have to duplicate effort, just add your specifications.
Should you want something flashier than the CLI interface, you can use special libraries to link to the graphical Intuition environment, and add your own custom requesters, menus and the like.

Also, unlike regular interpreters such as Basic, you do not have to load up the whole language every time you want to run a program; once loaded ARexx stays inconspicuously in the background ready to be used as needed.
But ultimately, the main reason for ARexx's success is our second task, its flexibility as a programming language. After all, the grammar of a language and its links to the host system are two separate issues, and any old script language could have been bolted on.
Several script languages are already in existence as part of software packages, and if you have used any of them, you will know how limiting they can be.
ARexx, on the other hand, has all the features of a modern highlevel language, and supports modular and structured programming.
Let me stress here that ARexx is built for comfort, not for speed. The speed of ARexx lies, not in how fast it runs its programs, but in how fast it lets you write them.

ARexx does not have separate data types, so you do not have to declare integers, floating points or arrays at the beginning of your program.

Everything is treated as a string of characters, and this simplifies things no end - and not just for the beginner! ARexx also has outstanding facilities for handling tables and arrays, with minimal effort
on the user's part. Overall, it lets you approach all programming chores with a minimum of set-up requirements (for a detailed discussion of this, see the last two issues).

Some people feel that all this power can lead inexperienced users into pitfalls, but I think that this is far outweighed by the advantages.

Once they get into it, even people who have never programmed before are surprised at how much they can do. ARexx will support rigorous programming just as well as "quick and dirty" hacks to get a job done.

Many applications can benefit from the addition of a script. If you have ever sat in front of a screen performing repetitive actions with a mouse, and wishing that you could go away and let the machine do the job, you can see the advantages.

## CUSTOM COMMANDS

On the Amiga, the applications that make most use of ARexx are animation, graphics, modem communications and DTP. Obviously each application will specify its own custom commands - to simulate menu selections, for instance - and on the whole these will be different in each package and unrelated to ARexx. However, the control language that ties everything together (loops, IF statements, etc) is the same.

Finally, we have interprocess communication, which is the natural extension of scripts, and unique to the Amiga implementation. This allows programs to communicate with each other directly.

The best way to understand this is with some examples: A wordprocessor could control a DTP program, setting the text as soon as it is finished, a database could control some presentation software, giving impressive graphic updates of its contents, a modem could control a.remote robot, and so on.

Well, I hope this has gone some way towards whetting your appetite about the ARexx beast, and maybe even given you some ideas for your own use. Thanks to the more seasoned ARexx users for bearing with me; we will recommence our more technical sorties from the next issue.

ARexx could be the Amiga's best kept secret. Alex Gian opens the lid on the language, its history and myriad of uses

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The script is finished. Everyone whose read it has congratulated you on its originality and excellence. Questions fly back and forth across the neighbourbood - some cynical; oh, you fancy yourself as a hot shot direcar now do you' - some irritating; really, how interesting! How Mig did you say your budget was? - others "endearing"; will you member me when you're rich and famous?
Well maybe a touch exagerated. Pre-production is the next tal link in the chain of production. Many films may start with a solid script but go wrong through lack of real preparation and owersight on the part of the makers.
The first obstacle to overcome is how you want to shoot the sideo. This introduces the director's bible - the storyboards. These are made up from a series of boxes where pictures are drawn depicting each shot of the feature.
Beside each of these are descriptions of the individual shot and whatever dialogue or action happens within them. You don't aeed to be an accomplished artist to make up the storyboards. simple stick-men style drawings are sufficient for producing smething that you and your future crew can work from.
If you're still not happy with the results, get a friend to do tem or simply construct a written shot list giving a description of each one in the film so, at the very least, you'll go on a shoot tnowing exactly what shots you want, not necessarily how you sant them to look. While it is important to remember that a clear ution is needed for any film, the storyboard is a guide not the

## Behind the scenes

If you've ever wondered what all those masses of jobs were in the credits of your favourite film, then here is the list for a "skelelon" crew.

Small crews generally work the fastest so keep numbers to a minimum by doubling people's roles up. It's best to take an extra person around with you as well to help lug gear and look after it when everyone is focused on their jobs, which are:

PRODUCER - In the real world, this guy or gal is the employer who hires and fires everyone including the director. They're the one who hunt money out of its hiding place to feed into the film.

DIRECTOR - Just the person who leads the team and calls the shots... easy life!

PRODUCTION ASSISTANT - The director's nanny. Helps with all the paperwork, drawing up schedules, crew lists and anything else which can be thought of.

Frequently seen standing round on the set with a clock casualy saying "two minutes left for this shot" while everyone else runs ound like chickens with their heads cut off.

Can be doubled up as a location manager who finds the different settings for your film and then gets permission to use them for free with their superb negotiation skills.

UGHTING CAMERA OPERATOR - The eyes of the director. Good camera operators can bring their own ideas to the directr's vision without stepping on anyone's creative toes.
They can also double as lighting designer, a much underestinated job - it's not just a case of whacking a few lights up and naking it look like Neighbours.

SOUND RECORDIST - One of the most important jobs on the rew and rarely receives any recognition because they don't tave a funky piece of equipment to strut around with. They can atten make the difference between a professional or amateur groduction.
Also rolls the videotape and performs spot checks, which is boking at the previously shot image to make sure that there is no dstortion or breaking up of the picture.

EDITOR - The person who makes or breaks a film. A bad video zan be made to look excellent and vice versa by editors working heir cutting room magic.

final say. Due to the nature of a shoot where anything can happen, you'll find yourself making alterations whether it's due to weather, circumstances beyond your control or simply because you've changed your mind about how it is to be shot.

Don't be afraid to do this: The more research done at this stage, the better your instincts will serve you on the actual day and it will normally tum out to be right.

With the storyboard's finished, it's on to cast and crew hunting. If the production is small then yourself and a few friends can do it but if you're feeling brave and think that a more experienced crew and cast are needed then place adverts in the local newspaper for talent; try and get the local radio station to give you a little air time; contact amateur dramatic groups, drama schools and video clubs if there are any in the area.

It's always best to ask to see people's work via their showreels. A short interview to


# make sure they are enthusiastic and commit- <br> Choosing <br> your crew 

ted should be enough to give you a fair idea of what kind of person they are.
The same principle applies to the acting; auditions are sometimes not that useful. Nerves of the moment can help to produce a bad performance that does not do their talent justice.
The most important element to the selection process is the interview. The kind of rapport struck up between the actor and yourself is very important with regards to how well they'll receive instruction and how confident they are on set. Look after your actors; decent ones are few and far between.

If this all sounds a little nightmarish, don't worry - its layout is for a large scale amateur production. For the first few films, you may well decide to follow a more simple route using friends for all the roles - an ideal way to start.

- Next month, we'll be taking a look at the creation of scheduling. call sbeets and the first steps out with the camera.


Adam Phillips looks at recruiting in the second part of his epic serialisation of the video making story

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PC Task, the ingenious emulator that lets you run PC disks on an Amiga, can be yours for the exclusive price of only $\$ 39.95$ including VAT and postage and packing, saving 610 on the normal retail price.

PC Task does not take over control of the Amiga and is quite capable of multitasking, it just becomes another application screen to be switched to when wanted.

The emulator supports two floppy drives as well as two hard disks and pseudo hard


disks can be created as files on your hard disk. This feature allows the use of already created bridgeboard pseudo-hard disk files. You can also use a partition as a hard disk. And don't forget that the major advantage of software emulators like PC Task over hardware add-ons is that they don't invalidate your warranty.
PC Task comes with an excellent manual that keeps things easy to understand, plus more technical information for advanced users. There's also technical support.
The speed of PC Task is directly related to that of your Amiga, and the program includes EGA and VGA support. It is compatible with all Amigas running Kickstart/Workbench 1.2 or higher with at least 0.5 Mb of RAM, although some features do need a minimum of IMb. MSDOS is not supplied. It is suggested that you use v5.0 or v3.3.

To order your copy of PC Task just complete this order form and post it to PC Task Offers, Amiga Computing, Europa House, Adlington Park, Macclesfield SK 10 4NP. or if you are paying by credit card you can phone 0625 878888. If you do not want to cut up the magazine you may send a photocopy of the form or send the details on phinin paper. Allow 28 days for delivery.

## equencers

Product: Bar \& Pipes Professional 2<br>Manufacturer: The Blue Ribbon Soundworks Ltd. Price: $£ 299.99$<br>Distributor: Meridian Distribution Ltd, 081-543 3500

Pro Midi product with unlimited tracks, built-in notation, software mixer, graphic editor plus an open-ended architecture which allows the addition of add-on sound processing tools, plus simple integration of complementary products from the Blue Ribbon range.

Comment: Highly recommended in all departments but especially useful for multimedia and DTV applications, with the release of Bar \& Pipes Pro 2 making it the most flexible and arguably the most powerful package on the market.

Product: KCS Level II 3.5<br>Manufacturer: Dr T's<br>Price: £278.99<br>Distributor: Micro-Pace UK Ltd, 0753551888

Tape recorder-style main screen. Real-time Tiger graphic editing environment offering complete control over all Midi data. Quickscore notation system. Automix real-time software mixing plus programmable variation generator and master editor providing the most comprehensive variation generation available via 16 screens of editing tools and definable variation parameters.

Comment: An all-round pro product which offers the most powerful and accurate sequencing environment on the Amiga. However be warned: This is very serious software designed to meet the needs of the most demanding studio musician/engineer. An excellent investment for the experienced Midi musician but perhaps a bit to much for the average punter.

Product: Sequencer One Plus Manufacturer: Gajits Music Software Price: $£ 59.90$<br>Distributor: Gajits Music Software, 061-236 2515

Offers a unique diamond editing system which means that all adjustment of Midi data whether it be note, control or program change can be achieved via a via a simple point and click system making its editing environment extremely quick and easy to use.
Comment: A very good basic sequencer offering all the essentials if perhaps a little lacking in the frills. For the beginner or occasional user it's the perfect compromise between power and ease of use. However it does not offer the expandability and power features supplied by either B\&PPro or KCS.

## Product: TIGER Cub <br> Manufacturer: Dr T's

Price: $£ 99.95$
Distributor: Micro-Pace Ltd, 0753551888
Although limited to just 12 tracks, TIGER Cub is still a viable investment with a proven track record plus real-time graphic editing and Quickscore notation printing.
Comment: Although rather superseded by more recent releases, TIGER Cub nevertheless offers a good introduction to the Dr Ts family at a price the beginner can afford - just..

Product: MusicX<br>Manufacturer: Microillusions<br>Price: $£ 24.95$

Distributor: Silica Systems, 081-309 1111
Tracks run to 250 , plus librarian, protocol, filter and keymap editors. Like all the sequencing packages mentioned, MusicX is happy to process Amiga samples in addition to normal midi data.

Comment: Although something of a golden oldie in Amiga sequencing terms, MusicX is undoubtedly the best value package on the market and offers a great opportunity for the beginner to test their musical ability prior to investing in a more modem package.

## Patch editors/ librarians

Product: PatchMeister<br>Manufacturer: Blue Ribbon Soundworks RRP: £79.95<br>Distributor: Meridian Distribution Ltd, $081-5433500$

A generic librarian package which can be appended to either Super Jam or Bars \& Pipes professional as either a standalone or accessory. Boasts support for most modem


## On your Xmas list

## synths.

Comment: In relation to other packages Patchmeister offers a more accessible route into what can be a rather complex area. Due to its easy assimilation into the overall Bar \& Pipes environment, it's the perfect compliment to Blue Ribbon Midi system.

```
Product X-OR 1.1
Manufacturer: DrT's
Price: \(£ 199.99\)
Distributor: Micro-Pace UK Ltd, 0753551888
```

Boasts the most comprehensive support on the market with over 120 Midi devices catered for. In addition the software is completely programmable and can learn and remember your entire Midi setup ready for instant editing when required.
Comment: Alas like its parent program KCS, X-OR 1.1 is not ideal for the beginner, being designed to fit the needs of the professional who wants and will use its powerful if rather complex options.

As a prelude to the silly season, Paul Austin provides a concise buyer's guide to Amiga music software

## Miscellaneous

## Product: SuperJAM 1.1

Manufacturer: Blue Ribbon Soundworks RRP: $£ 99.95$
Distributor: Meridian Distribution 081-543 3500
The musical talents of six virtual musicians combine to provide an automatic song generation system which produces instant backing tracks
with the band as a whole taking their leadfrom a selection of supplied and add-on styles.

Comment: Although perhaps not of great use to inspirational musicians, Super Jam can nevertheless be an invaluable tool for commercial musicians who are often called upon to produce large quantities of lift music quickly.

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- you how to type special characters. System
Mover, to make moving fonts and system Mover, to make moving fonts and system


 files a snap. And Brain Cloud, which can protect your disks from accídental use by others.


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- Full AmigaDOS 2.0 and 3.0 compatibility, including support for both hard and soft links.

Replicator
Quickly makes multiple copies of floppy disks.
Creates disk images and saves as AmigaDOS files.

## Locator

Searches disks for files that partially or fully
match specified names.

- Displays location of files, information about files and file contents.


## Encryptor

Encrypts and decrypts files to prevent unauthorized access.

- File decryption is password protected.

File Eraser

- Completely erases and deletes files to make their contents unrecoverable.
- Uses standard or US Government erasure methods.


## Disk Eraser

- Completely erases all traces of just deleted files, or of all files on a disk.
- Uses standard or US Government crasure methods.


## Keystroke Finder

Displays keystrokes necessary to generate any character.

## System Mover

Quickly and easily moves fonts, printer drivers, and system files between disks.

- Displays version information for printer drivers and system files.


## Brain Cloud

- Makes a floppy disk unaccessible to AmigaDOS.
- Not even the Amiga's "Format" command will work on a disk with a "Brain Cloud"!


## General

- Workbench 2.0 style "3-D" user interface.
- Requires Kickstart 1.2 or later (Kickstart 2.0 or later recommended).
- Suggested retail price: $\$ 125.00$.

If you're into comms then you'll be into the Internet. If not physically connected to it, like using CIX's feed, then you'll know about it, and will at least be able to send external mail over it
But have you ever wanted to be more in touch with the Internet? I wanted to find out about setting up my own Intemet node, and boy is it expensive. But there is a cheaper and much more enjoyable way to reach out and touch someone.
In the process of my investigations I heard that Demon Internet can connect you to the Intemet with your own node for fust $\$ 10$ a month!

Yep, it's true and I got all the details. The minimum subscription period is just one month apart from the Mail Forwarding option (which I'll talk about in a sec) which is an annual contract.
The services include direct connection to the Internet, mail and Usenet news. A special comms program is needed for your Amiga, but this is downloadable from CIX or Demon.

The Standard Dialup service puts your computer on the Internet with your own Intemet address. File transfer (ftp) directly to and from your computer, download/upload mail and news, telnet and ftp all at the same time, by a process called multiple sessions.

You get a full read/write Usenet news feed. You can also have multiple mail addresses from your machine too, like

```
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```

Demon stipulate that even thought you have multiple addresses, "mail must only be processed on the computer connected to us and not passed on to other computers for composing or reading." Gee, why not?
There is a once only set-up fee of $\$ 12.50$, and from then on a fixed price of $\$ 10$ a month. There are no on-line charges or charges for mail and the like. Once you are connected to your nearest Demon "Point of Presence" (PoP) you pay no extras.
Right now you can connect to PoPs in London, Warrington or Edinburgh. Payment for home users can be made monthly in advance by Access or Visa credit cards. You may pay annually by cash, cheque or credit card the yearly fee of 5120 , which is handy if you don't own a credit card, like me.
Oh yes and the best bit. Mail Forwarding is as I said - for an extra annual charge you can add a little something to the Standard Dialup Service, allowing you to use your own domain

(like for example "snouty.com").
This extra service costs a mere $\$ 200$ per year, payable in advance. But think about it... philesnouty.com... damn, I like the sound of that. Oh yes, and technical support for Internet customers is available Monday to Frid: between 9 am and 9 pm and Saturdays between 9am and 6 pm . Just think, a mere $\$ 320$ and you can have your own customised Internet address.

Many thanks to Giles Todd of Demon Internet for all the above information. Now all Ive got to do is find a spare $\$ 200$ to have my own domain.

- Demon Internet Ltd, 42 Hendon Lane, Fincbley, London N3 1TT. Telepbone: 081349 0063/031-552 0344 or email internetedemon.net



# Takes one to node one 

## Get online

If you have a comms question, then please write to Phil South, Amos Insight, Amiga Computing, Europa House, Adlington Park, Macclesfield, SK10 4NP. Or take the easy way and email Phil as:
snoutyâcix. compulink, co.uk

## Phil South looks at life on the Internet, and answers a few questions about FTP

## Picking up from a satellite server

I'm open for enquiries on the Intemet, CIX, and all matters BBS, so why not send me a note by snail mail or email? This month's question is from Christopher Rea on CIX. He wants to know how to get the satellite pictures from Imperial College via CIX. He said he'd tried to use a Gopher server but it didn't deliver the goods. Well, Chris, they rarely do. I always prefer to wade in manually and surf the Intemet by hand. It's easy. From the MAIN: prompt on CIX, simply type:
run internet
then at the ip> type:
ftp stc.doc.ft.at.uk
When Imperial College asks you to log in type:
$\square$
and when it asks for your password type:
creaisix.conpulink, co-uk
and you're in. Use cd and dir to find your way to the weather/pics directory as described in the mag. Then when you find the gifs or jpeg files in the directory ( 1 think it was mentioned in the mag) you type:

## get ukt.gif

or whatever the file name is. This sends the file to CIX from IC. Then when you got all the files you want you QUIT out of the IP by typing:

## quit

then you are at the ip> prompt again. Do a dir to see what files you got. Then SEND them from CIX to you by typing:

## send ***

which will send all the files to you one by one. You can use ADPro or ViewTek (on a Fish disk) to look at the pictures.

(Italian and Portugese also available, Dutch in Nov. '93
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0ne of the most common computing operations known to man is the sort. You take a list of numbers or letters and sort them into a specific order either first till last or ust till first.
This doesn't take a great deal of artificial intelligence, as most of the things on which these decisions are based is mechanial: Does this word start with an A or doesn't it' That kind of thing.
In the past we've had to construct our own sorts from other commands and make them do the job. But Amos is an exception Tet again, as it has a built-in sort function.
OK so it's not very smart and in order to get it to sort anything in a fancy way you've still got to resort to some fancy programming, but nevertheless it works and it saves you a lot of time if all you want to do is stuff some strings in an array and belt them out the other end as soon as possible and in rank order.
Using SORT is easy, all you need is a variable for it to act upon. The variable it acts on is always an array. An array, in case you never studied Basic in college, is a variable which holds more than one value in a number of electronic pigeon holes. It does it like this:

## Sort a(0) <br> Sort is(0)

like that. In these examples a and as are arrays, the first obviously containing numeric data (numbers) and the second containing alphanumeric data (letters) otherwise known as strings.

The SORT function returns your array in a sorted form of ascending order. This means $1,2,3,4,5 \ldots$ rather than descending order which would be ... $, 4,3,2,2$. In the case of words or letters alphabetical order is the order of the day.
This function works in the same way in both Amos Pro and regular Amos. An allied function is MATCH, which searches an already sorted array for a specific value. When it finds the value it puts the index (the location in the array) into a variable which you can retrieve later.
So a basic array loader goes like this:

## Dir If10)

First DIMension the array, in this case ten numbers. Then set up a loop to fill the array with numbers which you input:

$$
\begin{aligned}
& \text { For } A=1 \text { To } 10 \\
& \text { Input } I(A) \\
& \text { Hext } A
\end{aligned}
$$

When you get to the bottom of the list, the numbers you put in must be displayed. If you do this:

$$
\begin{aligned}
& \text { For } \mathrm{gzf} \text { To } 10 \\
& \text { Print } 1(8) \\
& \text { Hext B }
\end{aligned}
$$

then each number you put in will be printed in the order you put it in. Fine. But what if you wanted them sorted into numerical order? Simple:

```
Din I(10)
    For }A=1\mathrm{ To 10
        Input I(A)
    Next f
    $ort 1(0)
    For B=1 To 10
    Print I(B)
Next B
```


## Write stuff

If you have an Amos programming problem or neat Amos trick you want to share with the world, then please write to Phil South, Amos Column, Amiga Computing, Europa House, Adilington Park, Macclesfield, SK10 4NP.

AMOS

Same again really, but notice how SORT is used to arrange the array into order, no matter what wacky numbers you slap in. If you want to type in fractions you'll have to specify a floating point array with the \# or hash: symbol, as in this more finished example:

```
Din 18(10)
Screen Open 0,640,200,16,Hires
flash Off : Curs Off: Paper 0: Cls O
Print "Please give se 10 numbers.
for }A=1\mathrm{ to to
    Print "Nuaber ";A; : Input If(A)
    Nert A
    Sort 1a(0)
    Print: Print "The sorted figures are
    as follows,..
    for }0=1\mathrm{ To 10
    Print 1A(B)
kext B
```

As for using MATCH, well it's very easy. MATCH fills a variable with the location of


## Sort it

an item in an array. If it finds the item then it loads the index into the variable:

## $x=$ hatct $(1(0), 4.5)$

for example looks for a value of 4.5 in my array from the previous program. If it finds it at $\mathrm{I}(3)$ for example, it'll put the number 3 into X. I can then use:

## Print $I(x)$

to refer to that location in the array. You could do a devilishly slow sort this way, by searching for lower and lower numbers and any numbers you find being put into another array in reverse order.

Incidentally if MATCH doesn't find a match for its searched for figure or letters, it'll return a minus figure, so this is easily scanned for and ignored.
To reverse the order of a sort more simply do this:

```
Sin It(10)
Oin 12d(10)
Streen Open 0,640,200,16,Hires
Flash off: Curs off: Paper O:Cls O
Print "Please give ae 10 numbers..."
For }A=1\mathrm{ to 10
    Print "Number "; ; ; Input If(\alpha)
    Hext 1
    sort 1s(0)
    Q=1
    For }\textrm{c}=10\mathrm{ To 1 Step -1
        12*(D)=1*(C)
        Inc:
    Next &
Print : Print "The re-sorted figures are as follows...
For }B=1\mathrm{ To 10
    Print 12d(B)
Next B
```

The magic occurs when we let $12 \approx(\mathrm{D})=1=(\mathrm{C})$. What we are doing is counting down through the original I*() array with the FOR/NEXT loop, and feeding each figure into the $12=0$ array from 1 to 10 by INCrementing the array index as we go. Neat eh?

> Phil South looks at the Amos Sort function, plus a few more coding widgets

## Write a program!

This is the part where I set you a bit of homework. For starters, can you figure out a way to allgn the floating point numbers so the decimal points line up? I'll give you a clue - look into using LEN, and LEFTS, MIOS and RIGHTS. Wink.
For the big project how about this: Try to write a program which takes in a list of names and allows you to sort them, and also search for a particular name.
Use flags to attach a small text file to the name and load it from disk. Package it all together and you've got yourself a database program!

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Ihere is no substitute for a well presented document where each page consistently looks like it belongs to the previous one. On the same theme, if your document is a periodical - that's a document issued on a regular basis - it is again important that each issue has a similar style to the previous one.
But this consistency should not be at the expense of speed. Deadlines still have to be met, so a method like templates is needed, a foundation on which you can base the pages in your document.

There are a couple of ways you can employ templates. One is to use a page template within a document as the basis for every page created, and the second is the template document.
The former template is essentially a page that is not printed but contains all the "furniture" that you will have on each page thereafter - furniture being elements that are used regularly by a particular document - the page number for example, the name of the document or the chapter title, and any graphics that are repeated from page to page.

By having these on a template you can create all the pages for your document with these elements already present on the page in the same position and in a consistent style.

Achieving a consistent style will require other tools, like tags, and in ProPage at least you can pre-tag text on your template so that when you load text into a box the new text will automatically acquire the tag.
This isn't the case in PageStream because elements from its version of a template, the master page, cannot be edited on any other page other than on the master page itself.

Now so far I have applied this to a single template page, but in both PageStream and ProPage the template page can be two pages, a right and left, or odd and even if you prefer.

## DOCUMENT TEMPLATES

In ProPage you always have an odd and even template, in PageStream you can set whether you want the one master page, or right and left master page, when you create a new document,
Although the two programs can work with both left and right templates, they use different methods of creating the pages from these templates - hardly surprising as they do most things differently.

In ProPage each page has to be created manually, in PageStream your pages are already there for you when you create a new document.

What is important is the way the two programs use the templates. In ProPage you can lay out the elements on your template and create a page from this, either a single left or right page or, in facing pages mode, both right and left pages at once. By specifying boxes linked, text can be flowed from page to page until either all the pages are filled or the text runs out. In PageStream, with the


PageStream can have two types of master page: A single master, which is the base for all the pages in your document, or a left and right master page. Objects that are placed on a master page cannot be edited within the document

## PUBILISHING

pages already created, you do not create a page from a master. Rather, you add your elements to the master page and these will appear on the corresponding pages in the document.

So if you are working from a single master all pages in the document will contain these elements, but if you are working with left and right templates, by adding a element to a right-hand master page, all right-hand pages in your document will also have these elements.
PageStream does not enable you to edit any of the elements from the master page on a page within the document. So if a graphic element is not required on a certain page in your document the only thing you can do is delete it on the master page, in which case it will disappear from all pages in your document. Or you could cover it up with another box. Template pages are not the end of the


# Standing on solid ground 

story. Template documents are also very useful. A common example is the humble letterhead. By creating one and saving the document as a template it can be used as the basis for all your letters, making the task in a DTP package simple as all the decorative elements are in place with only the individual text to beimported.

ProPage goes one step further, enabling you to save single pages and load them into a current document. This is useful when there are elements in one document you want to be present in your new document. PageStream does enable you to append documents, so you could fudge something similar.

If you get the feeling that templates are vital in document creation, you're right, they are. But more than anything they make the designer's job much easier and quicker, which is why most wouldn't be without them.


What is a template and why are they so important?<br>Ben Pointer draws his conclusions

ProPage 4 enables you to work on facing pages, so one or many spreads can be created very easily, like this one here that is made up of two pages, an odd (right) and even (left) page

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## AWARD CONSTRUCTION KIT

"...the package is excellent..." Amiga Computing - August 1993 and ACK received an 85\% rating in CU Amiga - August 1993 ACK offers Amiga users the ability to easily create customised awards and cernificates, ACK comes
complete with 6 headine fonts, 8 body text fonts, 5 seals and 11 borders along with 50 pre-defined aw complete with 6 headine fonts, 8 body text fonts, 5 seals and 11 borders along with 50 pre-derined award styles. All of these can be edited and mixed to suit your individual needs. ACK also offers the abiinty to save frequently used user styles.
The program will work on any Amiga and has an excellent 'point and click' user interface which has intentionally boen designed to be simpie to use. ACK is a modidar programme, which gives users the ability ACK is available exclusively from E.M.C., and for a special introductory period the program is available for-


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## IDEK MF－5017 and MF－5021A Hi－res <br> AGA compotible monitors <br> Supplier IDEK llyamo Phone： 0438745482 Price： $\mathbf{6 7 2 5}$ and $£ 1,225$ respectively

ver since the arrival of Workbench 2 and its new Productivity modes，the high－end monitor market has really blossomed．Now thanks to emergence of the A1200 and 4000，more and more people are becoming desperate to exploit the myriad of new screen modes and colour combinations on offer from the AGA．

As AGA users will be all too aware，simply plugging in a PC－ style monitor doesn＇t necessarily ensure success．In fact AGA machines require monitors which will sync down to 15.5 kHz － thereby allowing access to games software and the machines boot config screen．

As a result either a bi－sync，quad－sync or better still a multi－ sync monitor is essential－and invariably more expensive than its bog standard PC counterpart．
To say that the necessity for precise monitor specs has cause a little confusion would be something of an understatement－ however things have improved with the release of the Commodore 1942 bi－sync which offers AGA compatibility along with a reasonable asking price．
However the 1942 still doesn＇t support all the available modes，and form a design point it＇s slightly limited by its 14 in screen．Enter the IDEK duo at a whooping 17 and 21 inches respectively．

As you＇ve probably spotted，neither monitor offers the cheapest monitoring solution for the Amiga but to be fair moni－ tors of this screen size are invariably meant for high end applica－

# Relieve some of that eye－ strain with a 17 －incher or its 21－inch big brother．．． 

tions．Although fairly pricey in Amiga terms，both models are at present retailing at a much reduced price tag specifically to cap－ ture some of the Amiga market．

When contacting for more information on either monitor be sure to stress that you are an Amiga owner－only then can you buy them at the prices listed above．
If you do not mention your Amiga affiliation you＇ll be quoted the normal retail price of $£ 1,054$ for the MF－5017 and $£ 1,764$ for the MF－502IA．

Starting with the larger of the two models，namely the MF－ 5021 A，there＇s a mixture of good and bad news．On the plus side is the truly huge and almost completely flat 2 l in screen．

Alas，along with the huge dimensions comes a slightly disap－ pointing 0.31 dot pitch－a figure which real terms means a very

slight fuzziness to the overall image when running in higher screen resolutions．Although not exactly a plus for CAD－style applications the relatively high dot pitch has no effect on the area in which the 5021 is best suited，namely presentation．

Unfortunately，for day to day use it wouldn＇t be my firs：

## Christmas plus Frames \＆Borders

Bit－mapped mono clip art<br>Supplier：Artworks<br>Phone： 0469588138<br>Price： 67.99 per disk

When it comes to clip art，the Amiga is fairly well blessed with a seemingly endless supply of disks crowding the quarter page adver－ tisements around the PD pages．

As a result，the prospect of forking out almost $t 8$ on a commercial alternative may seem a tad unnecessary．

However like anything else you have to invest for a quality product，and that＇s exactly what＇s on offer from Artworks－a company that＇s already responsible for a library of 12 disks that have been widely accepted as the best bit－mapped clip art available for the Amiga．

Like the Multimedia CD－ROM mentioned earlier，both Artwork disks are well con－ structed with accompanying posters showing
all the clips at a glance．The disks themselves also assist selection via auto－booting slideshows which run through the entire contents of the disk．

The only real limitation of the collection is the strictly bitmapped file format which means scaling does degrade image quality． Having said that，it must be stressed that both disks contain probably the highest qual－ ity images I＇ve yet encountered．

As you＇ve probably spotted，the titles

leave little to the imagination with the Christmas disk providing the usual array of Yuletide classics such a showmen， snowflakes，crackers and decorations，all itching to play a part in the silly season as festive newsletters，faxes，flyers and so on．

As for Frames \＆Borders，usage may not be as obvious，but if you＇re looking for a means to glamorise your letter heads or perhaps improve the impact of general DTP the disk provides a very useful library of bolt－on extras which work well in concert with the aforementioned Christmas disk， adding a little sobriety to the it potentially tacky tinsel－town exploits．

In addition to DTP，both disks could also play a part in desktop video as the bitmapped design means importation into paint packages or presentation systems such as Scala couldn＇t be simpler．

For the purists the disks also have the added bonus of originality as Artworks insist that all their images are original

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creations with no preliminary scanning whatsoever．

As for value for money，the collection does fairly well，with each image costing approximately $4.5 p$－which considering the three to four month generation time isn＇t exactly manic profiteering，

All in all，a good investment for any seri－ ous Amiga artist／publisher who doesn＇t mind paying for a quality product．However I＇m sure that Artworks would enjoy improved sales if their collection was on offer as more than just bitmaps．

Each disk contains $15,640 \times 512$ hi－res mono pages accommodating between four and ten individual images per page．

Fhop Winidow

choice, not only because of the dot pitch but also its rather annoying dislike for multitasking which means that flipping between programs results in dramatic pin cushioning effects, demanding repeated screen adjustment to maintain an optimum display.

Moving on to the MF-5017, and the outlook is brighter. Like its larger counterpart, IDEK's I7in alternative is a true multisync which will happily go down to the essential 15.5 kHz

Fortunately, unlike its big brother the 5017 has no pin cushioning problems when flipping screens. Unfortunately, however, the dot pitch remains the same at 0.31 - but it must be stressed the fuzziness apparent on the 21 in model appears all but gone on the smaller 17 in screen.

On the control side the smaller model does lack some of the finer points on offer from its brother such as degauss, the PCC or pin cushion control, and no RRC or raster rotation control.

The degauss feature simple de-magnetises the tube by sending a charge which removes any latent magnetism that could be degrading the picture.

PCC simply allows adjustment of the vertical distortion which can occur when hopping between screens, while RRC ensures the image is square in relation to the screen.

Although I've delivered a fairly harsh account, both models still remain a reasonable investment - especially considering the discount. However, if you're serious about dramatically improving your display, adding an RTG or retargetable graphics card such as Picasso or Piccolo in addition to an IDEK is a very wise move.

- For more information on IDEK and RTG combinations contact Micro-Pace UK Ltd on: 0753551888


Multimedia Toolkit
Multimedia CD-ROM for CD32 and CDTV
Supplier: Weird Science
Phone: 0533340682
Price: $£ 19.95$
It's been a long, long, time since I've experienced even the slightest excitement at the prospect of reviewing a CD-ROM. However with the arrival of the Multimedia Toolkit, apathy is now a thing of the past.

After just a few minutes with the aforesaid CD even the most hard-bitten hack would be transformed into a quivering mass of expectation as the seemingly endless supply of graphics and sounds spew forth from the 600 Mb of this impressive multimedia library.

It's not only the number of files but also the variety and overall quality of the collection that impress. To put things into perspective, the disc contains over 10,000 files which break down into 500 original 24 -bit images with both Ham8 and HAM interlace variations, over 1,308 examples of coloured clip art, another 2,139 in mono - and let's not forget the 214 icons.

Fonts also play a part w/th 195 standard fonts, 120 colour fonts, another 107 Adobe fonts, 80 PostScript, 79 Compugraphic and 93 examples of scalable clip art. On the sound side, 750 tracker modules await plus 2,300 samples covering every noise and instrument imaginable.

With so many files and such diversity, accessibility has to be given serious consideration. Thankfully in the case of CD Toolkit any file is only a few mouse clicks away thanks to an option and requester selection system that makes data retrieval a doddle.

As you'd expect, each category of file has its own directory structure which is navigated in the

usual mousy manner. When a specific file is located it can be auditioned by a double mouse click or via a selection of view, hear and play buttons on the left of the requester.

As for compatibility, again there's little to complain about with the CD operating on both CDTV and CD32 in addition to limited access via a PC CD-ROM drive.

With the expansion options such as floppies, hard disks and keyboards yet to appear for the CD32 it remains fairly useless for the existing CD32 user base - however when the promised add-ons appear it will be an essential part of any system capable of CD support.

As you're probably aware, CD 32 technology is promised for the entire range, but alas it's very unlike to appear before spring 1994. However. when the inevitable happens any serious Amiga user involved in either video, DTP or general multimedia would be mad to miss out on this truly excellent produce.


Handy slideshow utilities...

## Disk Expander

Disk doubler automatic data compression system for hard and floppy disks Supplier: Micro-PACE UK Phone: 0753551888 Price: $£ 39.95$

So-called "disk doubling" is a technique the PC world has taken on board since the release of DRDOS 6.0 which offered it as standard, and one which has become increasingly common.

The technology of automatically compressing and decompressing data whenever a drive is written to or read from makes for the most effective use of storage space, and If used correctly can in effect increase the size of a hard drive.

The PC world has acted as a large test lab for disk doubling to the extent that the algorithms used in compression have all been thoroughly tried and tested. Many, notably the LZ routines, have cropped up in packer programs such as PowerPacker and Imploder, both of which have superb levels of reliability.

Amiga users should therefore feel relatively comfortable with the idea of a hard drive consisting in part or in whole of crunched and compressed data, but the idea of automatic compression is still one which causes a few nervous twitches.

For some reason, we all start getting jumpy and expecting files to be garbled or corrupted just because the Amiga is doing the compressing in the background.

In reality, how many of us have packed a program, then found that the crunched file no longer runs? This has never


Options galore to control the compression process
happened in the history of Amigo Computing CoverDisks despite the fact that we have always made extensive use of crunchers and archivers, so there is no reason why the same compression routines should work any less reliably when utilised by a disk doubler.

Disk Expander is the first commercial Amiga disk doubler and as such it has a lot of ground breaking to do. Supplied as a single disk and manual, the program is a modest collection of three utilities and a collection of libraries offering a variety of compression formats.

Users must install the program before it can be run, at which point the initialisation process writes to the original disk, which makes this one of the only productivity releases ever to feature limited on-disk copy protection.

Installation can be to hard or floppy disk drive, and in the latter case Disk Expander will compress the target floppy until there's enough space for itself, so it is possible to install to an already full Workbench disk.

Most users of Disk Expander, though, will want to make the most of a hard drive which may have seemed huge when first purchased but which has since begun to creak under the

## Al 200 Insider Guide

Beginner's guide to the Al200
Supplier: Bruce Smith Books Phone: 0923894355

Price: $£ 14.95$
The latest Amiga Insider Guide, its publishers claim, is the best selling Amiga handbook ever, and though we have no way of checking this claim there is no doubt that this is the most popular A 1200 guide presently on the shelves.
Reasons for this aren't difficult to find, and a quick glance through the book's 24 chapters should be enough for most users to pluck it from the book case.

Starting from the point of view of a completely new owner and aiming consistently at practical advice and projects, the book takes the uninitiated from explanations about what Workbench is through simple copy
commands, to script editing. Along the way, users are introduced to icon editing and creation, icon tool types, most Workbench functions and prefs settings, printers, and printer setup.
There are several good illustrations, using screen grabs, to walk readers through tricky subjects such as installing a new printer driver, and so on.

Fonts, commodities, CrossDos, and multitasking are also covered, giving the book enough subjects that it should continue to be useful after a first reading.

There are places in which the subject matter could be better covered or treated in a more in-depth fashion, and one or two places where you are left wishing there had been more to a particular chapter, but overall the Al 200 Insider Guide should be a useful and enlightening first book for all A| 200 owners.
strain, and the program's simple approach should make this an easy task.

The central utility - Disk Expander itself - is activated from Workbench (although there is a CU option) and can be started either as the first line in a startupsequence or once the machine has booted.

When run, a number of options are available to customise the way in which data is compressed or to choose the default drives for compression.

Entire devices can be selected and their contents processed, or individual drawers can be targeted for squashing For instance, users with huge directories full of 24 -bit files, sound samples, or other space-gobbling data can choose juss to target the most bulging parts of their hard drives.

There is a limit to flexibility, as automatic compression decompression works only on proper devices, and will not work with a directory which has been made into a logical device using the assign command, so for selective doubling the user must resort to the Device Packer program.

This utility can crunch all the data presently in a directory. thus saving acres of space, and so long as Disk Expander is running in the background the files can be accessed as normal

Several parameters available through Disk Expander's from end give the user full control over this sort of operation. Each device can be set to pack, unpack, or both, and switch between the way a directory is displayed.

To avoid confusion, files can also be shown by the Dis

## - D DEStatistics

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| :---: | :---: | :---: |
| Create statistics |  |  |
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[^8]command or file requesters using their original file sizes, an option which is highly recommended.

When copying a file from a packed device to an unpacked device, such as when copying an image from hard drive to floppy, Disk Expander unpacks the file and saves the original to the other device. If the user can't at first see how big the original was, he or she might become more than a little confused.

Setting a device to unpack but not pack files is useful if a few directories require crunching but the user is reluctant to apply this to the entire drive or partition. In this way, Device Packer can be used to process and crunch the directory's contents from time to time when it starts to fill again with new unpacked files.
Access times for crunched data are understandably a little slower, but most users will be pleasantly surprised at how little Disk Expander impinges on system operation.

Using the default installation procedure and the default compression library gives a decompression rate of 613 k per second on a 25 MHz 68030 machine, a rate which will drop quite a bit on the AI 200 or A500.
Even in the worst cases, though, decompression will never be so slow as to make the system unusable, and on faster machines Disk Expander is more or less unnoticeable.

The various optional compression techniques, in particular the FAST library, give the user a choice of whether to go for more speed or more compression, so an optimum set-up can always be achieved.
FAST compression results in about 22 per cent space savings as opposed to NUKE's 33 per cent, but when you consider that this might be 20 to 40 Mb on a larger drive many users would settle for the faster-but-less-compressed approach.

The FAST library is being developed further as we go to press, and the program can utilise any new XPK libraries developed by shareware authors, so Disk Expander should if anything work more effectively as new libraries are released

Given its simple interface, fast, efficient compression, and use of proven techniques, Disk Expander is highly recommended to any user with rapidly diminishing storage space and that's most of us.

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0ne of the biggest misconceptions about hard disks in general is that they will in some way transform your machine from an old friend into a total stranger set to scotch any attempt at usability.
On the hand there's the naive belief that a hard disk is just another name for an all-singing, all-dancing automated answer to everything.

In fact if approached from the right or wrong angle both arguments hold water. The angle in question being your level of understanding of how a hard disk operates, a factor which could mean the difference between bliss and misery.

In effect a hard disk is simply a very big, very fast, floppy. If you can keep this concept in mind managing the beast is a whole lot easier. For example a hard disk has to have all the basic elements the Amiga expects to find on a floppy.

If the machine can't find essentials such as $\mathrm{C} ., \mathrm{S}$ : Libs: and so on, you'll be lucky if it will even boot-up never mind run its installed software.

All the system essential directories must be resident in the root directory of the system disk - just as they are when a floppy boots the machine - thereby assuming the role of a floppy system disk.

## SYSTEM DISK

Whenever the machine is turned on with a hard disk installed and no floppy present, the hard disk immediately becomes the system disk, and as a result the machine will attempt to boot from it and from then on will look to it for all the files asked for either by you or your software.

The point is that you must be able to manage your hard disk properly by making sure that what the Amiga requires is available and in the right place. For this reason alone a directory manager is essential.

Fortunately there's a lot of choice in this area with several programs in the public domain plus the odd commercial alternative. Notable PD programs including TDM and SID2 - both of which have been on past AC CoverDisks - while the commercial offerings include Directory Opus and Directory Manager.

For the beginner a PD program should be more than enough as it simply makes the process of copying, moving and managing files much easier. If however you feel confident enough to handle the process via the CLI/Shell, feel free.

In addition to file management it's essential you become comfortable with the AmigaDOS assign command as it's often invaluable to anyone using a hard disk.

Assuming you've decided to take the plunge, what's next? Should you go for a SCSI or an IDE? Do you have a choice, and if so what's the difference? Well although a slightly complex subject, these are the basics. If you own a machine that runs on Workbench 2 or below you have the choice between IDE and SCSI, the essential difference being that SCSI devices are generally a little faster and more expandable, while IDEs are usually a lit-

> With Christmas almost upon us, Hard Times takes the pain out of investing in a hard disk

tie cheaper. For the average user the difference in speed is barely noticeable, especially if you've just upgraded from a floppy system. The thing to bear in mind is that speed in relation to hard disks is totally different to what you're use to.
For example, in floppy terms speed is usually gauged in minutes or seconds, while hard disks are compared in milliseconds.

In simple terms this means that software loaded on an IDE drive will take longer to load in relation to the average SCSI with the effect increasing when writing to the disk.
For example DPaint may take 2 to 3 seconds longer to load on an IDE. Obviously this is a very rough guide but it does illustrate the difference in relative speed between the two formats.

On the expansion side an IDE will support a maximum of two
drives from one controller while SCSI stretches up to seven. In addition, a SCSI controller will also accommodate other media such as scanners, tape streamers, opticals and laser disks unlike IDE which is strictly limited to hard disk control.

Although a real advantage to serious users, the speed and flexibility of the SCSI standard is not really an issue for the average punter. After all, can you see yourself lashing out for a single extra drive, never mind six?

Before handing over any cash, here's a list of essential questions you should put to your supplier.

First and foremost ask whether the unit is IDE or SCSI. If the unit is an IDE ask if the drive - minus the controller card would fit into either an A600 or A1200. This is worth knowing even if you're planning to use the drive externally on a older machine because if you decide to upgrade later on you won't necessarily need to invest in a new drive.

When buying an A500/500 Plus external drive ask if memory can be added to the drive, and if so, can the machine still use this additional RAM when the hard disk is turned off?

If the drive you want operates without a power supply. enquire if there is an option to add a power supply if necessary. This may be essential if you plan to use the drive with additional peripherals as the strain on the machine's internal power may be too much.

## EXPANSION

In the same vein, ask if the drive offers a DMA pass-through. If not it will be impossible to use additional DMA devices such as scanners or RAM expansions unless they offer a DMA through option allowing the drive to be appended to them.

If you opt for a SCSI device and wish to take advantage of its daisy-chaining potential, ensure that the drive has a SCSI thruport. If not, you won't be able to expand later on unless you buy another controller card.

Remember to ask about the speed of the drive. Query the drives access time in milliseconds. The fastest drives run at about II milliseconds with 17 being the norm for IDEs - anything above 20 is pretty sluggish.

If you're planning to buy a second-hand unit, make sure that the original formatting and prep software comes as part of the deal. If disaster strikes and you're forced to re-format your drive, finding appropriate software can be very difficult, especially on older models.
The same applies to a new drive. If the drive comes pre-formatted you must insist on a copy of the prep software.
Finally when buying a drive make sure you have at least 2 Mb of memory in total. As Commodore found out to their cost with the $\mathrm{A} 600 \mathrm{HD}, \mathrm{IMb}$ machines fitted with a hard disk won't run some IMb games simply because a certain amount of RAM is required to boot the hard disk and Workbench, as a result many 1 Mb games were rendered useless.

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